This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

W1
DE
267
SER.3

UC-NRLF
B 4 327 004

LIBRARY
OF THE
DENTAL DEPARTMENT,
UNIVERSITY OF CALIFORNIA.

This book must be returned within four days. Fine, five cents each day for further detention.

Vol. XIV. No. I. JANUARY, 1900. Fourth Series.

THE DENTAL OFFICE AND LABORATORY.

A JOURNAL OF DENTAL INTELLIGENCE.

PUBLISHED ONCE EVERY TWO MONTHS.

EDITED BY
THEODORE F. CHUPEIN, D. D. S.

PUBLISHED BY
JOHNSON & LUND,
620 RACE STREET, Philadelphia.
BRANCHES:
CHAMPLAIN. BLD'G., STATE & MADISON STS., CHICAGO, ILL.
GRANITE BLD'G., ROCHESTER, N. Y.

$1.00 PER YEAR, IN ADVANCE. SINGLE COPIES, 25 CTS.

CONTENTS FOR JANUARY, 1900.

PAGE.
LEADING QUESTIONS AND ANSWERS FOR DENTAL STUDENTS (THIRTY-NINTH PAPER) 1
REPORT OF THE PENNA. ASSOCIATION OF DENTAL SURGEONS 6
WHY TEETH DECAY AND HOW TO PREVENT THEM 8
TO SET CEMENT RAPIDLY 13
GREETING 14
KENTUCKY STATE DENTAL ASSOCIATION 15
OBITUARY NOTICE 15
SELECTED ARTICLES—
Submarine Cohesive Gold 17
Decrowning Teeth 21
An Interesting Supreme Court Decision 23
CORRESPONDENCE 24
PRACTICAL PLACE—
A Cheap Moldin—Oil of Cajeput—Hydronapthol in Root-Canal Treatment—Removal of Dental Pulp—The Thumb in Lunacy—How to Pack Amalgam—Antipyrin—Oil of Cloves—Clasps, Etc... 24

RATES FOR ADVERTISING.

	One Year.	Six Months.	One Month.
One Page	$150.00	$90.00	$50.00
One-half Page	90.00	50.00	30.00
One-quarter Page	50.00	30.00	20.00
One-eighth Page	30.00	20.00	12.00

Accession No. 1156

LIBRARY
COLLEGE OF DENTISTRY
UNIVERSITY OF CALIFORNIA

THE
Dental Office and Laboratory.
FOURTH SERIES.

VOL. XIV. PHILADELPHIA, JANUARY, 1900. NO. 1.

THIRTY-NINTH PAPER.

LEADING QUESTIONS AND ANSWERS FOR DENTAL STUDENTS.

BY THEODORE F. CHUPEIN, D. D. S., Philadelphia, Pa.

Q. Are these cases always of the same nature?

A. They are not, but sometimes partake of an aggravated condition. In the cases already alluded to the pus was what is spoken of as laudable pus, but in the aggravating condition the pus assumes a watery condition.

Q. What is laudable pus?

A. Laudable pus is a whitish or cream-colored pus, without odor, and which was at one time thought to be necessary to the healing of wounds, but when the abscess takes on a septic condition, as it sometimes does, it becomes watery or sanious.

Q. What follows when it assumes this character?

A. The bone as well as the soft tissues wastes away. The tooth loosens and soon will be lost.

Q. What is the cause of this change in the character of the pus?

A. It seems to be caused by a collection of micro-organisms different from those found in ordinary pus.

Q. What is the treatment in these cases of watery pus?

A. Our information of these cases is too indefinite to recommend any course of treatment.

Q. Does chronic alveolar abscess result from any of the causes which produce the acute form?

A. Chronic alveolar abscess may be brought about by a chronic pericementis in the apical space without painful inflammation. It is sometimes induced so quietly as to cause no pain, not even discomfort, and this too in a tooth free from decay, in which the nerve has died. A chronic abscess thus induced does not seem to affect the tooth involved, as it often remains but slightly different in appearance from its neighbors.

Q. Are teeth thus affected easily recognized?

A. They are not easily recognized, as often they are but slightly different from the teeth next them. It is true that the nerve has invariably died, which deprives the tooth of its translucency; but the product of decomposition from the dead nerve throws off sulphurets more or less dark, which by infiltration into the dentinal tubuli stain the tooth more or less. Besides this, such teeth, though they often show so slight a discoloration, are never affected by cold, so that this test applied will indicate the tooth affected, when the lack of tinge will not aid, and thus show the tooth from which the exudation flows from the fistulous opening.

Q. Does the pus from a tooth always force the fistula near the part affected?

A. As a rule the pus follows the line of least resistance, but often it is deflected in its course, and cases are recorded where the pus from an upper molar makes an opening or vent for itself on the clavicle.

Q. Are not these cases of alveolar abscess accompanied with complications which render their treatments more difficult?

A. Yes. This is the case when the pus from the apical space finds its way into the antrum of Highmore.

Q. What do you mean by the antrum of Highmore?

A. It is a cavity in the upper jaw, varying in size and form, discovered by, and named after its discoverer, Nathaniel Highmore. It is also known as the maxillary sinus. It is ordinarily somewhat triangular in shape. Its floor, or lower wall, lies next the ends of the roots of the molar teeth, sometimes including the bicuspids. The upper wall is formed by the orbit of the eye, the nose, and malar process. It is bounded in front by the canine fossa, and in the back by the tubuosity of the maxillary bone. These cavities vary in shape and size even in the same subject, the right sinus being different from the left.

Q. Do the roots of the molar teeth always extend into this cavity?

A. Not always. Sometimes there is a thickness of bone between the roots and the floor of this cavity.

Q. What are the complications of alveolar abscess?

A. When the roots of the teeth perforate this cavity they are only separated from it by a thin lamina of bone, and the pus from the abscess finds its way into the sinus and is held there, sometimes producing serious complications.

Q. Do not these abscesses discharge on the face as well as in this sinus or on the gum?

A. Most abscesses discharge on the gum but many find an outlet on the face. It has been observed that abscesses in teeth of the *lower jaw* more frequently discharge on the gum than those of the upper jaw.

Q. What should be the advice of the dentist to his patient when he finds a tooth with every indication to the formation of abscess?

A. To avoid the application of poultices, or all hot fomentations *to the outside of the face.* To use hot hop tea or hot applications of all kinds *in the mouth*, not on the outside.

Q. Why is this?

A. Because the pus will frequently follow the point of the greatest heat, and the hot fomentations soften the parts to which they are applied and invite the pus to this point.

Q. What should be done to give relief in these cases?

A. If the abscess point on the gum, indicating a "head" to the coming fistula, puncturing with a sharp lancet to let out the pus will afford almost immediate relief. If only blood comes from this puncture, there will be no relief. Pus must follow in considerable volume before relief can be obtained. Sometimes a second puncture will find the pus, where the first did not.

Should the abscess not be sufficiently advanced to resort to these measures, the cavity should be freed of all loose decay until there is a free opening into the nerve chamber and roots, when a fine probe is passed into the roots and if possible through the foramina. In doing this there will sometimes be an exudation of pus which has been pent up in the apical space, and will also give almost instant relief. Again, sometimes, after the most careful probing, no pus will exude, when we feel doubtful that we will give relief by our efforts. Nevertheless, a vent thus established will give relief *after a time.* The application of disinfectants and germicides should also be freely made to these roots and an anodine or sleeping draught recommended on retiring. When the abscess has established a fistula on the gum and the face remains in a fearfully swollen condition, the swelling may be subdued or hastened by the application of towels wrapped around the face, well soaked with tinct. aconite. If it be found impossible to evacuate the pus through the roots as we have indicated, and the tooth be of such importance to warrant the operation, an outlet may be formed through the outer alveolar plate and the apical space reached in this way, through which the pus may be evacuated.

Q. Do not these abscesses establish a fistula on the gum and sometimes of their own accord close up?

A. They do. Dr. Black records a case of this kind from a lower incisor, where the abscess closed, and the pus continued to burrow until it found an external vent under the chin.

Q. Is this frequently the case?

A. Such cases more frequently occur from what is known as "blind abscess" than from cases where the abscess has established a fistula.

Q. How would you diagnose alveolar abscess?

A. By the soreness of the tooth to which the patient points; its looseness and the inability of the patient to bring the teeth together without inflicting great pain on himself, the redness of the gums about the affected tooth and the puffiness of the gums and the swelling of the face.

Q. Would you recommend extraction as a relief of these cases?

A. Not always. Sometimes relief may be given without resorting to extraction. But if the tooth has no antagonist and is, from this cause, useless, or if it be a useless root, extraction may be recommended. If, on the other hand, the case looks as one amenable to cure, and would offer a support for a plate with artificial teeth or a pier for bridge-work, we would endeavor to cure the disease before resorting to extraction.

Q. How long do these cases of alveolar abscess last before the abscess finds an outlet?

A. The time cannot be definitely stated; but generally it runs its course in three to ten days, those persons with soft teeth and soft bones being relieved sooner than those with dense teeth and bones.

Q. Is not the duration of an abscess a subject claiming our attention and solicitude as important as the severity of the formation?

A. It is; because the longer the septic matter is kept in contiguity to the bone, the greater the liability of necrosis.

Q. What should be done in these cases of severity and protracted formation of an abscess?

A. Saline or other cathartics should be administered in addition to local application, massage, and for the production of counter-irritation and the reduction of the induration and swelling of the parts. A cathartic may be used which will produce large, watery stools. This will tend greatly to the relief of the suffering, and when the intensity of suffering produces a loss of sleep and exhaustion, a five-grain Dover powder tablet may be administered at bed-time.

Relief does not always follow when the abscess discharges, but may continue with more or less severity for some time. The system being pretty well run down from the disease, a tonic may be given, either of quinine or Huxham's tincture of bark. These tonics may suffice if the patient be of good general health, but if he be of low recuperative power, anæmic or generally weak condition, five or ten drops of the chloride of iron should be given, three times a day, in addition to the quinine.

Q. What is the treatment for the ordinary cases of alveolar abscess?

A. As soon as the tooth is in a condition to work on, the cavity should be freed of all accumulations of food and debris, and a fairly direct entrance made into the nerve chamber and roots by the removal of all loose, leathery decay. All weak parts should be cut away with enamel chisels where they may be applied, but better still, in our opinion, with small carborundum points in the dental engine. This may be done before the application of the rubber dam. When the cavity is fairly opened, the dam is applied and the parts made perfectly dry with bibulous paper, hot air and alcohol. A further and complete entrance into the nerve chamber is made with *nice new, sharp, round burs*, blowing out the debris as it accumulates. The entrance into the root or roots is sometimes made without difficulty, but should the debris obliterate the entrance, a liberal application of a fifty per cent. watery solution of sulphuric acid will generally clear this away. This application of acid should be made with a platinun or gold probe around which cotton is wrapped. The acid should be neutralized with a liberal application of a saturated solution of bi-carb. of soda and water These liquids are then dried out and the entrance made into the roots with the *largest sized* Maury or Gates-Glidden reamers, first following these with smaller and smaller sizes, and clearing the debris with root canal cleansers until the apex of the roots is reached. When this is done, an effort should be made to pass a fine Swiss broach through the foramina into the apical space. This may be accomplished if the roots be straight, but should there be a crook at the end of the root, this will not be possible. If the whole of the canals have been thoroughly cleansed, this will be the most important step towards a cure. A freedom from all moisture is also most important, which may be accomplished almost to the point of dessication with a root canal drier. The general mode, however, has been a reliance on some of the antiseptic remedies, as oil of cinnamon, carbolic acid, gaultheria peroxid of soda, pyrozone, etc., etc., etc.

[To be Continued.]

REPORT OF THE PENNSYLVANIA ASSOCIATION OF DENTAL SURGEONS.

By Theodore F. Chupein.

The painless removal of the dental pulp, by means of powdered cocain, applied directly to that organ on an alcohol-soaked piece of spunk, charged with this anæsthetic, and subsequently pressed upon with a ball burnisher, over a piece of unvulcanized rubber, so extensively of late spoken of in the dental journals, was referred to by Dr. Chupein.

Dr. Wessels had tried this plan on several occasions, but in somewhat different manner. Instead of using only alcohol, he made a menstrum of five parts of alcohol and one part of formaldehide. Into this he dipped his spunk and applied to the exposed nerve, bringing increased pressure on the unvulcanized rubber as much as the patient could stand without discomfort.

When asked why he used the formaldehide, he stated that this matterial toughened the nerve as well as caused it to shrink, and left it in a better condition for the barbs of the nerve extractor to engage themselves into it, thereby making its removal easier.

He had not, in this, been always successful, as he believed if the nerve was in a hypertrophied condition, it would refuse to be anæsthetized.

On the subject of the employment of arsenical paste and nerve fiber for devitalization, Dr. Chupein spoke of the greater safety of the latter over the former, yet could not speak of its effectiveness. With nerve fiber, there was not that liability of oozing on to the gum and creating a sloughing, that there was with nerve paste. He used the nerve paste himself, and always cauterized the gum at the septum, with carbolic acid, for fear of sloughing, except when he applied the rubber dam, for such cases, with the view of greater safety.

Dr. Trueman was more disposed to favor the employment of nerve paste, as he then knew just how much he used. He thought nerve fiber was made by steeping cotton floss in "Fowler's solution of arsenic." He had used disks made of asbestos paper charged with arsenic, but had not found them as effective as the paste.

Dr. Chupein could account, in a measure, for the behavior of nerve fiber or asbestos disks not acting as promptly on the pulp because this substance was not entirely arsenic, but the arsenate of potash. Fowler's solution is not arsenic, pure and simple, but really a one per cent. solution of the arsenate of potash, hence, while containing sufficient arsenic to obtund sensitive dentine, as Dr. Register has demonstrated, it may not contain sufficient arsenic to devitalize the pulp. He thought the fiber might be used successfully in conjunction with the paste, instead of employing cotton with this. His mode was to apply the paste and cover this with a disk of lead or paper and on this apply cotton; by using nerve fiber next the paste, and cotton floss over the nerve fiber, he believed good results could be attained. He had been very successful by sealing the nerve paste in with phosphate cement.

Dr. Trueman brought forward the subject of inlays. He had found that it took about seven minutes to fuse the bodies, furnished by the Dental Protective Company—in a Downie furnace. He was more disposed to favor high fusing bodies than low. He had endeavored to make a furnace and use nickel as a muffle. Although uickel is nearly as resistant as platinum, this metal fused as soon as the high fusing bodies, therefore it could not be used as a muffle.

When grinding high and low fusing bodies, the former was cut by the grindstone very much as an artificial tooth, while the low fusing body cut somewhat as a dense sample of oxyphosphate filling material after it had set well. He thought that the low fusing bodies could be used in approximal or labial cavities, but that high fusing bodies were better suited to restore broken corners or on occlusal surfaces.

Dr. Bonsall was able with his Ash's electrical furnace to melt low fusing bodies in three-quarters of a minute.

Several of the members present spoke of the visit of an agent giving instruction for one dollar in the art of soldering aluminum. The solder was composed of six parts of aluminum, two parts of zinc and four parts phosphor tin. The flux used was stearic acid. The agent demonstrated the soldering of a simple ferule. The lapped edges were well cleaned and carefully fitted, and the solder made to flow by holding over the flame of an alcohol lamp or the absolutely blue flame of a Bunsen burner. The solder is sluggish, but is pushed along the seam by means of a piece of iron wire in the form of a loop.

Dr. Charles Chupein had made an aluminum crown, but found when finishing this that the solder had not flowed at all points as it had appeared to do.

Dr. Theodore Chupein had soldered a loop or attachment to an aluminum plate, such as is used when employing such plates in combination with rubber, but although the loop held to the plate firmly, the solder had not flowed evenly.

The agent said that an entire set of teeth could be invested and soldered in this way, but from the behavior and sluggishness of the solder, in the simple cases which he had tried, and the care he had used to have every part clean, he doubted if this could be done.

WHY TEETH DECAY AND HOW TO PREVENT THEM.

By Theodore F. Chupein, D. D. S.

Philadelphia, Pa.

Teeth differ from the other organs of the organism because they have no recuperative power. It is related that a poor prisoner was chained to his rocky cell with only the ability of moving the length of his chain, which was three feet. In the years of his incarceration, the rocky floor gave evidence of his footsteps. The rocky floor had no power of recuperation. It had doubtless worn away the soft feet many times more than the evidence of wear shown on the rock. The soft feet showed no wear, for these were supplied by new material constantly, but not so the rock. We may cut, bruise or wound our hands or parts of our body, and the cut, bruise or wound will get well by the efforts of Nature, but if any of the teeth get broken, injured or bruised in any way, Nature *rarely* comes to their aid, as it invariably does in the case of our flesh. We say rarely advisedly, because we have had cases in our practice when such recuperation was exhibited in the teeth.

We had a family of children, as well as their mother, among our patients, all so weak, thin, delicate and puny that it seemed a breath of air would blow them away. I did my best with their teeth, which were irretrievably decayed, with many inward misgivings that "my best" would amount to little or nothing in the matter of preventing further extensions of decay or of securing their comfort from pain. Every three months there was "lots" to be done until I wondered not that the poor little creatures were weary of dental service.

For some reason this family removed from the city and sought a suburban residence. I missed, for some time, their almost monthly visits, but when they did call for service, I found a marked improvement, not only in their teeth, but in their complexion, eyes and general physical appearance. Little new decay was observed and even this little was of a more favorable character. Instead of the soft, whitish or leathery decay of former times, the decay took on the nature of *secondary dentin,* hard, blackish and polished, which frequently induced me not to meddle with it at all.

Gradually this family left me, seeking dental service doubtless nearer at hand—if they needed dental service at all—or perhaps blaming me inwardly, and not giving Nature the credit of their altered condition, both dental and physical. Nevertheless, I saw them occasionally, as well as the mother, whom, when I worked for her, eighteen years ago, I did not believe that either she or her children would be long spared, or would ever make " old bones, " and I found that both she and her children were vastly improved in all that denoted health, strength and vigor.

Whether this state of things was due entirely to the change of residence, where the whole family were thrown in *fresh*, *open*, *pure air*, or whether a change of diet added its beneficent influence to the change of air I know not, but am more disposed to believe that it was due entirely to a change of residence and pure, fresh air. Hence I am disposed to the belief that the recuperative efforts of Nature will sometimes act on the teeth as well as on other parts of the body without the interference of Art.

We have seen other cases, too, where the decay of the teeth has changed its characteristics. All dentists know that *black decay* progresses very slowly, so slowly indeed, that a tooth might be decayed with black decay and continue in its decayed state for years, making but little progress, while the area of the decayed spot was circumscribed in the same proportion. This condition we have noticed in some of our patients whose habits of life were the same as the general run of people who lived in the city, but whose life was passed greatly in the " open air."

We live in an age where nearly all the people hang their hopes on physic, whereas in the large majority of cases there is little use to resort to these measures. Nearly all the medicines we use are derived from the grains, berries, grasses, roots and fruits which serve us as food. God is the best physician and He has placed in all the articles of the food we eat medicines, the best adapted, and in the best proportion for the cure of ailments with which any part of our organism is affected.

We complain that we are sick or that our teeth decay, but we never stop to think that these ailments are brought on ourselves by our own abuses of Nature: thus we will often see persons take a mouthful of food, and should this food be of a dry or floury nature, they will not keep it in the mouth until it is formed into a bolus and thoroughly mixed with saliva, but they will resort immediately to a mouthful of water "to wash it down." This can do the organism no good, as it forces food into the stomach unfit for digestion and of no nutritive value, as digestion is accomplished almost as much in the mouth as in the stomach, "Le mange, dans la bouche, est demi digere." It is an old saying that we derive instruction often from the actions of food and infants—and in proof of this we would ask our readers to look at the action of the brute creation and derive instruction from them. Place before a horse or cow one bucket containing the most floury meal, and next to this a bucket of water. If we watch the animal we will see it will eat all the meal (if it be hungry, or not touch it at all if it is not) without once resorting to the water in the bucket to "wash down the floury meal," but will lubricate it entirely with its own saliva. When these substances are taken into the mouth they irritate the mouths of the ducts of the salivary glands and this irritation causes the glands to pour the saliva into the mouth and not only lubricate the food but prepares it for gastric and intestinal digestion.

The foolish will say "We are not horses or cows, hence we drink while we eat." But we ask those who answer thus: How did the men in whom you place such reliance—the medicine men—gain their knowledge of medicine but in observing the actions of the lower animals and their acceptance or rejection of certain food? Then if you speak so, don't complain of decayed teeth or of being sick, if you *will not* accept the promptings of Nature. Horses, cows, sheep, goats, elephants, indeed all the animals of our earth, never have decayed teeth, never have the need of a dentist, never clean their teeth with brushes, and why? Because they live as Nature intended them to live and follow the instincts of Nature. Is it possible to believe that God who created us all should be less solicitous for man, the highest type of His creation than He is of His lower creatures? "Consider the lilies." The constituents of the teeth of all the lower animals are the same as the teeth of man, then why should man's teeth decay and not the lower animals'? Because man is constantly abusing his organism by vicious foods and foolish abuses. We eat *too much* carbonaceous food and too little nitrogenous. Our children are given cakes, butter, sugar, rice, potatoes in quantities out of all proportion to their wants. These subtances give heat to the system but give no strength. While we do not concede that sugar, though its acid reaction acts directly on the teeth, but is dissolved in the mouth and carried by the saliva into the stomach, we believe it acts on the teeth, like all carbonaceous foods, through acid eructations from the stomach.

It is almost a vain hope to believe that dental decay can be arrested by the use of the tooth brush, antiseptic washes, tooth powders, dental floss and other measures of the kind. These may ameliorate but will never radically cure the trouble. A change of life, open air, *hard chewing of hard food* (not soft cake washed down with water) lean meats, whole grain bread, pure water, milk, eggs, beans, peas, corn, apples, berries, beef, mutton, etc., etc. These will stop decay, if eaten slowly and deliberately, if well mixed with saliva, than will the most labored efforts with brush, silk or powders. Not that we object to these, but because we wish to go to the fountain head. If the food is well chewed, the teeth will be kept white and fresh and clean. The gums will not bleed at the slightest touch but will adhere to the teeth well, and in clean, healthy festoons, and will not be forced away, as they frequently are, by persons who insist on using a hard brush, which should never be used.

Then as to the use of very hot and very cold foods. These should never be indulged, as we never see any of the animals committing these outrages on Nature. We do not believe that a mouthful of hot soup—followed by a mouthful of iced water will crack the enamel and serve as a nucleus of decay, as has been stated, because the soup could not be taken into the mouth hoter than 100 degrees F. nor the ice water colder than 40 degrees—and should a thin glass bottle be plunged into water as hot as 100 degrees and immediately after plunged into a tumbler of iced water of 40 degrees these changes would fail to crack it, so the inference is that the enamel of the tooth would stand as much as would the thin glass bottle. But while this experiment refutes the idea of the changes of temperature to which we subject our teeth in the taking hot and cold food successively, cracking the enamel and thereby forming a nucleus for decay, we are not disposed to recommend the practice, as it must be detrimental, and because no other animal but man commits this folly.

We should learn how to eat and what to eat. Eat what our appetite craves, avoiding, it is true, foods too rich in carbons—such as sugar, butter, fats, and the like, but when we eat these or other foods be sure we eat them slowly, taking a long time to chew them deliberately so as to comminute them into the smallest particles and mix them almost to a liquid condition with saliva. Let each mouthful of food be chewed or ground between the teeth *at least* one hundred and fifty times before it is swallowed, and be careful not to drink water after eating berries or fruit. These contain such a large proportion of water that to add water to them destroys the benefit derived from their juices.

We may not see the benefit of the advice we give immediately because it is difficult to make people "leave the beaten track" but the next generation, if the advice be heeded, will reap the benefit, enjoying not only better teeth but better health as well. Keep in the open air as much as possible, indulge in walking, athletic sports, outdoor exercise and hard labor, and we are sure you will derive the benefit.

It follows then that all the defects or suffering we have or are subjected to may be traced to the violence or disobedience of some law of Nature.

When the young unborn calf or pig or sheep is in the womb of its mother, the mother eats food which her instinct teaches her is rich with the phosphates, so as to strengthen the skeleton as well as the teeth of her unborn, and after birth, milk, which aids in like manner. But what can we expect a human mother to do for her unborn child when she lives on starchy food, butter, fats, sugar and other such articles of food, having not a trace of the phosphates? It follows that the child when born and old enough to have teeth, must have defective teeth. Not only this, Nature, craving the elements necessary to build up the unborn child, both as to its osseous system and teeth, draws from the mother—hence, we find that the teeth of pregnant women often decay rapidly.

It has been sought to counterbalance this effect by the liberal administration of lime water during pregnancy, so as to control this, yet on an analysis of the secretions of a mother, in this state, they are found to contain lime in large quantities which was not appropriated, so that it seems necessary that these proportions of lime, phosphorus, potash and silex can only be appropriated in food containing them, and in the proper proportions.

When the second set of teeth are formed they are outside the influence of the mother and can only be made strong and perfect by an obedience to the laws of Nature in the selection and appropriation of proper food, and eaten as Nature dictates we should eat it, which is only learned by observing the way that animals, who live in a state of nature, eat.

We have said that animals never have decayed teeth and that their teeth last through life, but it has been reported that the teeth of cows which are fed on the swill of distilleries do decay, and that it has further been observed that when this "swill" is fed to them while hot, the teeth decay faster than when it is fed to them *cold*. Thus we notice that hot food seems to be more deleterious than cold.

The second teeth of the child are made good or bad accordingly as the child is fed and taught to eat; for all the elements of the teeth are furnished from the blood, and the blood derives these powers from the food. The truly repentant mother who has passed many sleepless nights in trying to relieve the toothache for her child, apart from the sympathy she feels to see it suffer, will be watchful that the sin of ignorance or thoughtlessness which gave her child bad teeth will not be guilty of such another sin when the second teeth develop. She will give it good milk, for milk makes good teeth for calves, when older and able to eat itself she will give it good meat, for this makes good teeth for lions and dogs and bears. She will give it good vegetables and fruit, as these make good teeth for animals who do not live on flesh. Corn, oats, barley, wheat, rye—all make good teeth when these are given as we receive them from Nature, but not as we receive them from man, deprived of the very elements which are essential to the formation of good teeth. But if you feed your child on fine white bread made of fine white flour from which all the mineral elements are sifted; or give it cakes, butter in excess, potatoes fried and reeking in lard, sugars, candy, pastry or confectionery, you may look for no better second teeth for your child than it had at first.

We need not refrain from eating butter, sugar, or such foods as contain large proportions of carbonaceous elements, but we should be careful not to eat them in excess.

It follows, therefore, that by a proper regimen, and a careful observance of the rules of health, and the judicious selection of food, with plenty of fresh air and exercise, that a child could be made to have splendid health and a splendid set of teeth, although both parents were afflicted in both respects, hereditary deficiencies in these respects not being absolutely essential.

TO SET CEMENT RAPIDLY.

If it is desired to have the cement set quickly and remain very hard, add a sparing amount of finely powdered borax to the cement powder and the effect is obtained. This method will give good results in bridge-work and in fillings which indicate a quick-setting cement. —*March.*

THE DENTAL OFFICE AND LABORATORY.
Published Once Every Two Months
BY
JOHNSON & LUND, Philadelphia.
THEODORE F. CHUPEIN, Editor.

GREETING.

We extend our greeting and a happy New Year to all the readers of the Dental Office and Laboratory. We wish them Health, Happiness, a long and prosperous life.

How many thoughts, reflections, wishes, plans, schemes crowd on the mind at a season like this?

When we make a retrospect of the past and think of the immense strides which Dentistry has made within the last two decades, we think it must have borrowed the "Seven league boots" of Jack the Giant Killer. Indeed it is difficult to keep up. We examine the literature of the profession only to see that what was a new and original idea last year, is lost and distanced by a better one proposed this.

It is thirteen years since The Dental Office and Laboratory was presented to its readers in its present form. During these years we have presented *at least* two original articles in each number, often many more, while the selected articles have always been of a character to claim the attention of its subscribers. The "Practical Place," so filled with items of the most useful kind, make the journal eagerly looked for. At first, for two years, the journal was issued as a quarterly, but the growing demand for it induced its publishers to issue it every two months, and were it not that these were hampered with business crowding their time and monopolizing their attention, the journal would be issued monthly.

Our subscription list is steadily increasing, which is the best evidence that the journal is appreciated.

Now is the time to subscribe for the next volume, which begins with this number. The trifling subscription price of one dollar, with the premium which is offered, will never be missed, while the Onyx Cement offered, the best article of the kind in the market, fully repays the subscription.

The editor will spare no pains in the future to make the journal everything its readers could wish. Illustrating every idea when illustrations are needed to make the articles clearer. "The Leading Questions and Answers," which have, for so many years, been a feature of the journal, and which he has so often been written to approvingly of, and been so much sought after, will be continued, and he trusts read with the same unabated interest.

KENTUCKY STATE DENTAL ASSOCIATION.

The annual meeting of this society will be held in the city of Louisville, on the 15th, 16th, and 17th of May, 1900.

Assurances have been tendered its officers that this will be the best and most interesting meeting in the history of the Association.

Besides the most attractive program, arrangements have been made to procure "a one cent per mile" railroad rate over the greater portion of the United States to all who desire to attend.

Other attractions, besides professional, have been provided, among which trips to the "blue grass" region and the wonderful "Mammoth Cave," while visiting dentists will find ample accommodations and reasonable rates.

F. I. Gardner, Secretary,
213 West Chestnut St., Louisville, Ky.

OBITUARY NOTICE.

Dr. Stephen Thomas Beale, M.D., D. D. S., the oldest practitioner of dentistry in Philadelphia, Pa., and one of the oldest graduates of the Jefferson Medical College, died at his home, Tulpehocken St., Germantown, on Tuesday evening, December 12, 1899, in his eighty-sixth year.

His death was due to senile debility, but he retained all his faculties up to the time of his death.

Dr. Beale was born in Brighton, Sussex, England, May 23, 1814, and came to America with his parents in 1831, the family settling in Albany, N. Y.

His early education was obtained in England, but he also attended the Albany Academy after his arrival in this country. Later in his life he studied dentistry with Dr. McAllister, of Albany.

In 1837, he came to Philadelphia, where he attended lectures at the University of Pennsylvania and at the Jefferson Medical College, taking up the study of both medicine and dentistry. He matriculated at the Jefferson College, with Professor James Bryan as medical preceptor, and with Dr. Lee as dental preceptor, and graduated from this college in 1847, receiving the degree of M. D., and from that time until 1851 he practiced both medicine and dentistry, starting in the latter profession in 1840.

The work of both professions, however, being too laborious for him, he gradually abandoned medicine and devoted his energies entirely to dentistry.

His dental practice covered a period of fifty-two years in Philadelphia, when he retired, after a successful and lucrative career.

He was known as one of the "Fathers of Dentistry," being contemporary with Drs. Ely Parry and John De Haven White and other eminent dentists of Philadelphia, and with them was one of the founders of the "Pennsylvania Association of Dental Surgeons," which society was the first movement, in this city, for the promulgation of scientific education and social intercourse among dentists, being selected, on its organization, as its first vice-president and was the last of its founders. On the occasion of the fiftieth anniversary of this society, held at the Continental Hotel, the site of its assemblage in 1845, Dr. James Truman, dean of the Dental School of the University of Pennsylvania, who presided on the occasion, referred in his address to the period of "fifty years ago" as one of the transitions in the history of dentistry and the beginning of a new era in the study of science. He eulogized the founders of the organization, and small as the entering wedge was, they never anticipated the power it would exert nor the number of dental colleges which would be established from their efforts.

Dr. Beale was also instrumental in obtaining a charter for the "Philadelphia College of Dental Surgeons," and on its formation was asked to fill two of the chairs of the faculty, but although desirous of doing this he was prevented by ill health. The college, in appreciation of his merits and acquirements, conferred on him in 1853 the honorary degree of "Doctor of Dental Surgery." He was a master in his profession and was interested in investigating and undertaking such cases, as in those days, were considered "extreme," such as the repair of fractured maxilla, the appliances for cleft palate and the like.

In his younger days his laboratory was fully equipped with all the implements necessary for the pursuit of the calling in all its branches, as the making of artificial teeth, the carving of sectional blocks, single teeth or entire dentures, as also for the smelting and refining of precious metals. For years his laboratory was thrown open to young students, and well attended by them, in his enthusiasm towards dentistry, that he might give his quota to practical knowledge to those who wished to embrace it.

He was a man of broad views and advanced ideas, bright intellect and of great energy; an "old-school gentleman," of courteous manners, kind heart and domestic propensities, a thorough Latin scholar, a lover of nature and of the fine arts.

His contributions to literature did not include only dental subjects, but likewise articles for literary magazines, in the form of poems, serials and articles of merit.

His active brain sought recreation in musical compositions, which he intensely enjoyed and thoroughly understood.

From his youth he had been a consistent and active member of the Presbyterian faith, having for the last thirty years been connected with this communion, in the Second Presbyterian Church of Germantown.

In early life he married Miss Louise Boggs McCord, who died twelve years ago. They had a family of seven sons and three daughters, all of whom, with one exception, survive him. Two of his sons followed him in the dental profession, Dr. Stephen T. Beale, Jr., and Dr. Alonzo P. Beale; the latter, however, died in 1893. From these children are descended three grandsons, some of whom also embrace dentistry as a profession.

Thus we see the emulation pointed out by the life of a good, earnest man, who has left the "foot-prints on the sands of time," to prompt those who come after him to go and do the same.

SELECTED ARTICLES.

SUBMARINE COHESIVE GOLD.

Clinic given before the Denver Dental Society, January 12, 1899, by Sylvanus Davis, D. D. S., Denver.

Mr. President:—I feel somewhat embarrassed in giving a clinic which is in direct opposition to what has been taught ever since cohesive gold came in use. Submarine cohesive gold—who ever heard of it? Well, it is no different from any other gold, and I claim that as good a filling, perhaps a better one, can be made with gold wet as dry, and I shall try and demonstrate this fact to-night.

First, let me explain some of the peculiarities of the different styles of gold. All forms of felt or crystal gold feel soft under the plugger, and pack like snow, and non-cohesive gold does much the same, but cohesive gold feels harsh, although it is really softer than non-cohesive.

We wish to bring the gold in juxtaposition, and it would seem a simple thing to do, yet it is almost an impossibility to bring cohesive gold together *dry*. You cannot see anything between my hands, but an agent is there under certain conditions which will cause cyclones, will pick up a man and hurl him into space, and let him down without disturbing a hair of his head. I will draw on the blackboard the shape of a gold pellet. Put this pellet into water, and although gold is the heaviest of metals, it will swim around like a duck.

You begin on this pellet with a small plugger at one end and finish at the other—what have you got under that pellet? Compressed air, about 140 pounds to the square inch, bridging over air in all cohesive fillings. The rubber-dam is in place and you finish a fine looking filling in a room about 70 degrees Fahrenheit, then the old lady goes home tired out, takes a drink of tea at about 100 degrees, expanding the already compressed air, and the result is a cyclone, and your filling is full of pits. In soft foil the air passes out between the layers, in felt between the fibres or crystals, but the follicles in the cohesive gold will retain the air, regardless of all force.

Now I wish to ask a scientific question. Which is the easier to displace, air or water? You remember in boyhood diving off the shore, and how you could swim much faster under water than when you came in contact with the air. Take a dry and a wet piece of sponge, put them under pressure, and the air will be compressed, but the water cannot be, but will roll away.

Here is a bicuspid with a cavity in the approximal surface. I invest in plaster and build a cup around it, give it a coating of shellac, boil my cohesive gold in water until it sinks, to expel all the air (this is hardly necessary), put my gold into the cup with the tooth and fill it with water. You are sure now the gold is wet, so I commence with my ordinary cohesive pluggers and condense the gold, keeping it well under the water, and build it up, contouring easily with hand pressure. You see me now burnishing it off smooth without the depressions that would be in an ordinary cohesive filling, for a filling of this kind will never pit. It would be a novelty to use the rubber-dam to hold water around a tooth instead of keeping it dry, but this would not be necessary.

It is not always best to follow the bell-wether, but think, think for yourselves. Think about that which you are trying to do, whether you are pressing out air or water; make a solid foundation, and as you come near the surface, use smaller, thinner pieces of gold, even down to single strips of No. 4 foil; make the same condensation with less force, so as not to disturb the body of the filling, and try to bring the gold into juxtaposition.

Discussion. Dr. J. M. Porter.—Dr. Davis has proved to-night that gold can be so welded under water that it will not pit nor scale, as I failed to pull off the last piece in the filling just finished, which was purposely lapped over the enamel edge.

Dr. Wm. Smedley :—A coin may pass current for years yet prove spurious at last, and an idea the same. The cherished theory, that water will interfere with the cohesion of gold foil, has become so fixed in our minds that no mere assertion could disturb it; but to-night's ocular demonstration leaves little ground for doubting Dr. Davis' position. However, I should like further proof.

Dr. W. T. Chambers.—The way Dr. Davis filled the cavity, and the fact that considerable gold overlapped the edges of the cavity, which some endeavored to remove and could not, would indicate that the gold actually cohered. It was my impression, the cavity being a simple one with walls all around, that the filling was inserted the same as soft gold would be placed in such a cavity—by the wedging process. The lateral incisor containing a contour shows the gold properly condensed and apparently as perfect as a filling could be made of cohesive gold under any circumstances. I do not doubt but that the Doctor has accomplished just what he claims. However, we have viscid saliva to contend with in the mouth and not pure clean water, therefore I cannot see where the method has any practical application. In using cohesive gold I want it as cohesive as possible, and in order to have it so, we are told by good authority, the surface must be pure. Gold is not the only metal possessing cohesive properties. For instance, lead, zinc or tin, when freshly cut and before oxidation of surfaces occurs, will cohere, but if exposed to the atmosphere long enough they will not. If wet they will not. Most of us have found from experience that gold in order to cohere must possess absolutely pure, clean surfaces The filling of these cavities with tooth and gold in water, especially the contour in lateral, is a surprise, and until I try it I shall have to attribute the Doctor's success to his manipulative ability.

Dr. E. R. Warner.—In contour fillings this operation apparently presents greater obstacles than under dry conditions, and the presence of water must obstruct vision through refraction. Furthermore, the need of using thin pieces of gold, and the absolute union of layers by obliteration of water, necessitates unceasing care. I believe, however, that this method could largely serve our purpose in buccal and labial cavities partially beneath the gum. The frequent flushing of the cavity and gold with water would prevent interference of saliva, which contains organic and inorganic particles so destructive to the adaptation of gold. The theories advanced by Dr. Davis seem reasonably tenable. The scientific principles underlying the welding or cohesion of gold and other metals are apt to be overlooked by the ordinary observer, as he is inclined to recognize cohesion as an established fact and allow the theory of molecular arrangement to pass by unnoticed.

Dr. P. T. Smith.—Half the latent possibilities of gold are unknown to the average dentist, and I would urge more clinical laboratory work. Years ago, when the instantaneous impact principle of the mallet was introduced to the profession, and the rubber dam was discovered, quite a journalistic controversy arose regarding the safety or reliability of submarine gold fillings, and their durability when put in by careful manipulators was incontrovertably set forth.

My own laboratory experiments were made mostly with No. 4 non-cohesive gold foil, and it was proved that better results could be obtained under warm than cold saliva, better under pure cold water, and still better if the pure water was warm or quite hot. The fluids seemed to serve as a vehicle to lead the ever-present and deleterious air from between the folds of gold. Oils of various kinds, either hot or cold, were found to be an effectual bar to cohesion. Water artificially mineralized was deleterious according to its contents. In the presence of warm saliva actual cohesion could be effected by using well-serrated small-pointed instruments. The well-defined serrations produced the effective inclined-plane pressure, more fully overcoming all interposing foreign substances. Soapstone-dust in water was the most deleterious of any mineral admixture. Chloroform, ether, alcohol and saline water took precedence over ordinary foreign matter in the order named.

More gold is likely to be introduced into a cavity while saturated with moisture than if recently annealed and dry, because of the persistent tendency to honeycomb, even under the influence of the lightning impact. It is not well to recommend the indiscriminate presence of moisture in gold for fillings, but in rare instances a good, homogeneous gold filling can be made under water.—*Dental Digest.*

DECROWNING TEETH AND IMMEDIATE EXTIRPATION OF PULP.

I remember reading a few years ago an article upon crown and bridge-work, in which the essayist, describing the preparation of abutments, said that some recommended the decrowning and immediate extirpation of the nerve by punching it out with a wooden plug.

He, however, advised anyone attempting the operation to perform it upon a weak female, or to be sure he, the operator, was in a good physical condition. He evidently wished to convey the idea that the operation would be so excruciatingly painful that the victim of the outrage would be prepared for fight.

The writer had either never tried the operation or, having tried it, had had an unfavorable case, or for some reason had been unsuccessful.

As this is the operation generally practiced for immediate pulp extirpation in case of decrowning it may be as well to refer to it here; and let me say that while a description of the operation sounds barbarous it is comparatively painless. It is nothing to be compared to the pain of extirpating with a broach a pulp of which a little of the upper end is not fully devitalized. To make the operation successful a few precautions are to be observed. For the information of any who may never have practiced the operation it may be well to briefly describe it.

With a disc in the engine cut a groove across the labial and palatial or lingual surfaces of the tooth to be decrowned, at the desired point.

Have prepared a few points of orange wood or hickory, about two or three inches long. The ordinary wedgewood rods answer well. Make the points about the length, shape and size of the canal in the tooth to be operated upon.

Saturate them with some strong disinfectant. I have found pure carbolic acid very satisfactory. Have on hand a light mallet, also have the engine in position charged with a long pointed cone-shaped bur. Everything being ready, with a pair of excising forceps, one blade of which is placed in each groove previously made, the crown is removed. If the canal be found to have been exposed at or near its greatest diameter, one of the prepared points should be immediately inserted, and while held in position given a sharp, quick blow with the mallet. An additional light blow or two may be given to insure its advance to the apex of the canal.

If the plug be withdrawn, such of the pulp as may not have been forced out of the canal will be found adhering to the sides of the plug. The preparation of the canal for the post may be proceeded with at once. Indeed, some cut or twist off the plug and proceed to drill the post hole, leaving the plug as a filling for the apex. I have done this. An advantage of withdrawing the plug is, that if it has failed to reach the apex a broach or drill may be advanced.

If it be found when the crown is snapped off that the canal be not exposed at its greatest diameter it may be enlarged with the pointed engine bur and the extirpation proceeded with.

Whatever is to be done, however, must be done without delay. The shock to the nerve when the tooth is decrowned is so sudden, that the injury is not perceived at the seat of sensation. It frequently occurs in cases of accidents that severe injuries are sustained, as loss of fingers or toes, or wounds inflicted, without the victim being aware of the injury. Sensation soon returns, however, hence the necessity of haste in the removal of pulps in the case of immediate extirpation. This operation is only practiable in teeth having regularly shaped single root canals, as the six anterior superior teeth and second bicuspids and the ten anterior lower teeth.

I can conceive of cases even among the teeth named where this operation could not be successfully performed—for instance, in case of crooked and irregularly shaped roots, or in very small flat-shaped lower incisors where the nerve canal may be very fine and ribbon shaped; or where a tooth may be largely decayed exposing the pulp above the point at which it is decided to decrown, or where the pulp had receded beyond the point at which it is decided to decrown.

In such cases the nerves would fail to receive the shock necessary to anesthetize them. In such cases the pulps may be anesthetized by cocaine applied and its action hastened by means of compression, or by cataphoresis.

Indeed, many recommend drilling into the tooth to be decrowned, as far as feasible, and applying cocaine as an anesthetic. But as the effect of cocaine cannot be forced through dentine except by cataphoresis, and very few have cataphoretic batteries and appliances, and as it is seldom feasible to expose a pulp in a healthy tooth sufficiently to anesthetize by cocaine under pressure, we seem forced to resort to the first operation described. The *modus operandi* of anesthetizing a pulp by cataphoresis is no doubt familiar to many and may be better described by those who use this method of producing anesthesia.

The advantages of immediate root extirpation are various:

1. The saving of time. This is especially an object where a patien has come a distance and desires the work completed at the earliest possible moment.

2. The danger of toxic effects of arsenic are averted, and there is no danger.

3. The severe pain which sometimes follows the application of arsenious acid for devitialization of the pulp is avoided.

4. The danger of subsequent periostitis is reduced to a minimum.—Dr. R. E. Sparks, Kingston, Ont., in *Dominion Dental Journal.*

AN INTERESTING SUPREME COURT DECISION.

In the 60th North Carolina Reports (Winston's) there is on record a decision rendered at Richmond Hill, December 3d, 1863, by a Judge of the Supreme Court, which is of interest to all dentists. It appears that John W. Hunter, a dental graduate of 1856, from one of the dental colleges in the State of Pennsylvania, claimed exemption from army service on the ground that, being a surgeon-dentist, he was a physician,.and therefore exempt by Act of Congress. Owing to the dearth of paper and other printing materials at the time and in the place where and when this decision was rendered, it was never given newspaper publication, and was given to the dental profession for the first time by Dr. J. A. Chapple, of Atlanta, Ga., at the recent meeting of the National Association at Niagara Falls.

An Act of Congress exempting from army service "all physicians in the actual practice of their profession," the questions arose, What constitutes a physician? and Does the term "physician" embrace a surgeon-dentist? The record gives an exhaustive study of the derivation and definition of the word physician, including surgeon; the question was reduced to this: "Does a surgeon-dentist come under this definition, or is he a mere mechanic, who cleans, plugs and extracts teeth without the aid of science?"

The question being a new one, the case was adjourned and evidence taken as to the course of instruction in dental colleges, and the knowledge which it was necessary to acquire in order to obtain a diploma and practice with skill.

The conclusion of the learned Judge, from the depositions filed, is given in these words: "I am satisfied that a regular graduated dentist is a 'physician.' * * * If a tooth has to be extracted, the 'surgeon-dentist' by his knowledge of 'physiology' ascertains the condition of the system, and by his knowledge of 'materia medica' administers the necessary alternatives to put it in proper condition. By his knowledge of 'anatomy' he finds how the tooth is inserted in the jawbone, and knows what instrument will extract it with as little pain as possible and without injury to the bone, and the depositions state that frequently 'surgeon-dentists' are called on to perform delicate operations on 'the facial parts' (the upper and lower jawbones) which require an intimate knowledge of the structure of the bones and the localities of the arteries, veins and nerves. In short, the teeth being more subject to decay and disease than any other part of the human body, I am satisfied not only that regular, educated dentists are physicians, but that the human family are much indebted to them for confining themselves to a 'specialty,' that is, one branch of the profession, whereby that which was some years ago a mere mechanical art has become a useful and important science. It is therefore considered by me that John W. Hunter be forthwith discharged with leave to go wherever he will."—Mrs. J. M. Walker.

CORRESPONDENCE.

In our last issue we gave the name of our esteemed correspondent as Dr. E. I. Wage, it should be Dr. E. I. Waye, of Sandusky, N. Y.

PRACTICAL PLACE.

A Cheap Moldin.

The clay to be obtained from art stores, mixed with glycerine, makes a good article of moldin. It can be mixed with water, but dries out quickly and requires mixing for each time of using.—*Am. Den. Weekly.*

Oil of Cajeput.

Dr. Taggart, of Chicago, suggests, in the *Western Dental Journal*, that in placing crowns or bridges with gutta percha, the surfaces uniting with same be coated with oil of cajeput, and that it is a sticker.

Hydronapthol in Root-Canal Treatment.

In the treatment of a putrescent pulp-canal use hydronapthol-alcoholic solution 25 per cent. The penetrating property of the alcohol and its affinity for moisture carry it, laden with the hydronapthol in solution, to the remotest nook and corner of the pulp-chambers and canals, however small, even to the apex and through the soft tissues, as well as into the tubuli. The alcohol evaporates, leaving the hydronapthol to do its useful work of disinfection. It is powerful as a lion, cunning as a serpent, and harmless as a dove.—S. S. STOWELL, in *Dental Cosmos.*

REMOVAL OF DENTAL PULP.

I depend on it mainly where arsenic has been applied, and the pulp deadened enough to remove the bulbous portion, but on attempting to enter the canals with a broach you are greeted with a groan from the patient, followed by looks of vengeance if you persist in your efforts. I have the rubber dam in place, and proceed to dry out the bulbous part of the canal with hot air. After getting it as dry as possible, I prepare a ball of temporary stopping large enough to nicely cover the opening; take a small pellet of cotton, very loosely rolled, dip it in chloroform, place in bulbous portion, heat my temporary stopping, place it over the opening, and immediately press on it with a suitable burnisher or tightly rolled ball of cotton. If the patient gives a slight flinch, you can remove cotton and stopping and work away at those roots as long as you please.—F. H. BOWMAN, in *Dental Review.*

THE THUMB AND LUNACY.

A very curious instance of the intimacy between the functions of the brain and the remotest parts of the body may be observed by those who have anything to do with the inmates of lunatic asylums. It is that which concerns the thumb and the brain; in fact, it is said that there is one infallible sign of insanity. Let a person speak ever so rationally and act ever so sanely, if his or her thumbs remain inactive, there is no doubt of insanity. Lunatics seldom make use of their thumbs when writing, drawing or saluting.—*Health.*

HOW TO PACK AMALGAM.

I use instruments as large as the case in hand will permit, and tap the amalgam toward the walls and bottom of cavity. I can get a more homogeneous mass by tapping than I can by burnishing or pressing. Tapping has a tendency to bring the mercury in an amalgam into motion, and produce a softer mass than by any other means.—A. JAMESON, in *Indiana Dental Journal.*

ANTIPYRINE AS A LOCAL ANÆSTHETIC.

The use of antipyrine as a local anæsthetic is growing in popularity. Dr. G. F. Lydston reports in the *Medical Record* the use of it as a substitute for cocaine in a number of cases of urethrotomy, a ten per cent. solution of antipyrine in a one per cent. solution of carbolic acid. As far as his observations have gone, the solution appears to be quite as efficacious as cocaine. The advantages of antipyrine as compared with cocaine, says the author, are: Absolute safety; freedom from constitutional effects; lessening of hemorrhage; less disturbance of nutrition of the wounded tissues. The solution should be fresh and, as a rule, be allowed to remain 10 minutes before operating.

OIL OF CLOVES.

For general use in the treatment of pulpless teeth, it is certainly one of the best agents at our command. It possesses the property of destroying or rendering inert septic and infectious material. In cases of apical pericementitis it is perhaps the best agent that can be used. It possesses local anæsthetic properties in a marked degree, and, like some of the other agents, because of this fact, serves to reduce the inflammation in the tissues in the apical space and causes them to return to a normal healthy condition.—A. H. PECK, in *Dental Review.*

SETTING OF CROWNS.

Dr. Taggart fits gutta percha onto the post and in the root and gets a proper adaption first; then he dries the roots out and paints the inside of the canal with cajeput or eucalyptus; then he lets that dry a little and paints the inside of that with chloro-percha; then he paints the gutta percha on the post with chloro-percha, warms it a little and drives it home. They have this advantage: They are not set solidly, as they are with cement, and possibly the gutta percha prevents a fracture of the porcelain.—*Dental Review.*

CLASPS

Regarding clasps, it is my opinion that they are all dangerous to a degree as to the welfare of the tooth which they encircle. Clasps should be made as accurate as possible and as narrow as possible. No matter how well fitted, a slight friction must prevail, owing to the unstability of any partial plate excepting when such plate is fastened by partial caps upon bicuspids or molars. Time will destroy any clasp tooth, and it is for this reason probably that Dr. Freeman has advocated the crowning of all teeth to be clasped.—R. H. HOFHEINZ, in *Cosmos.*

CAMPHO-PHENIQUE AS AN OBTUNDENT.

Campho-phenique, confined under a temporary filling for a few days, is a valuable application for sensitive dentine.

MORE IN THE OCCLUSION THAN FINISH.

It is well to pay more attention to the arrangement of the teeth than to the finish of the plate. A poorly polished plate may be worn with entire comfort, provided the teeth are properly arranged. But no matter how highly polished the plate may be, it can never compensate for well occluded teeth.—A., in *Weekly.*

USES OF ABSOLUTE ALCOHOL.

Absolute alcohol for softened and sensitive dentine, and for drying cavities, may be prepared as follows: Add one part of potassium carbonate to four parts of the ordinary, or officinal alcohol. Owing to the great affinity carbonate of potassium has for water, it abstracts the latter to a sufficient degree to answer all practical purposes.—*British Journal.*

SEPARATING MODEL FROM IMPRESSION.

Drop model and impression into hot water for a minute or two, after which they will separate without the least trouble, leaving the model much smoother than if whittled out. Another model, if desired, can be made in the same impression, as in nearly every instance the impression will last for two casts at least.

CARE IN TRIMMING AMALGAM FILLING.

With amalgam the greatest care should be exercised in shaping the proximal surface of the filling, and especially in trimming away all surplus amalgam from the interproximal space while the amalgam is plastic. If an excess of the material be allowed to extend over the cervical margin of the cavity till it becomes hard the operator will experience great difficulty in its removal, and the gum tissue will never remain healthy.

THE USE OF SILVER NITRATE.

Where the cavities are not in an exposed position a fifty per cent. solution of silver nitrate may be applied to the cervical border of mesial and distal cavities in molars and bicuspids, and will do much toward preventing decay at that point. By means of a few shreds of cotton on a broach it may be applied without staining any other portions of the mouth.—*Brit. Jour. Den. Sci.*

OXYCHLORIDE OF COPPER.

In this connection I will speak of an oxychloride which will probably be new to all of you, since this is my first mention of it, and since the cement-making property of its base, oxide of copper, happens to be my discovery. Oxychloride of copper, I have been using in certain conditions of pulp canals, for a sufficient time to feel assured that it has all of the virtues of oxychloride of zinc, except color, in greater degree. Where its color does not preclude its use, this oxychloride can be placed in the pulp chamber of a tooth in which the pulp has recently been devitalized, and be counted on to mummify more remaining pulp tissue than any agent known to me. It stains a portion of the dentine to a blue-green, but where this is the lesser of evils, I find great satisfaction from its use. A stiff paste will set slowly till heat is applied, giving plenty of time for working into place. Generally, I use the minimum quantity of this, covering it with some other material having more definite setting qualities. For this covering, the oxyphosphate of copper answers well, because of setting readily from a semi-fluid state. The oxychloride is formed by mixing the heavy, black oxide of copper with a saturated solution of chloride of zinc. This is not the simple oxychloride of copper, which the oxide with chloride of copper forms. This may also be a useful combination, but has not, to my knowledge, been experimented with for this purpose.—W. V. B. AIMES, in *Items of Interest.*

HOW TO MANAGE GOLD FILINGS.

In reducing gold filings and waste to an ingot, first cover with nitric acid to clear from iron, silver, etc. Filter out the acid, and, folding the filter paper with the fine gold, place all in the crucible. Cover with borax before melting.

To Keep Solder in Place.

To keep your solder in place, add a little gum arabic to your flux, and rub with the borax and water on the slate.

Recipe for Sticky Wax.

To make sticky wax for holding clasps in place, use resin two parts, beeswax one.

Formula for Fine Gold.

Dr. Max Sichel has presented to the Stomatological Club the following method of making fine gold, which, it is considered, makes the finest working, most compact and cohesive filling gold of any now on the market. Dr. Sichel is so advanced in years that he does not care to manufacture it for sale.

Take fine gold, dissolve in two and one-quarter parts of muriatic acid and one part nitric acid till gold is all dissolved and becomes red like blood tears. After it is cool add distilled water—say, one ounce of gold to twelve ounces of water. Let it stand for a week or ten days, when the chlorid of silver will be found on the bottom. Then add oxalic acid till gold is precipitated. Then pour it off and wash well till all the oxalic acid is out. Dry it in a dish, put it in a crucible lined with bone-dust, melt it and then roll.—*Ohio Journal.*

Carbolic Acid.

In *The Polyclinic* Dr. Oscar H. Allis, of Philadelphia, has contributed an article worthy of widespread circulation. He says the use of carbolic acid in full strength upon the fresh tissues, raw surfaces, etc., causes the formation of a protective albuminate, a condition which renders further absorption impossible.

The same takes place when the strong acid is applied to a raw burned surface. It is not claimed that an aqueous dilution is safe when applied extensively to raw surfaces; on the contrary, the more dilute the more dangerous. In a case of washing out the thorax in the treatment of purulent pleurisy, the late Roger Keys, a most careful and judicious physician, came near losing a patient from absorption of the dilute acid.

" It will strike many of you with astonishment when I say that it would be safer to pour a gallon of pure carbolic acid into a purulent thoracic cavity than to pour in a gallon of water into which a single ounce of carbolic acid has been placed. I will go even further, and say that excess of the strong acid in a cavity such as an abscess cavity, or upon exposed tissues, as a burn or a fresh wound, does no harm, while excess of a dilute solution, if left in a cavity or used over an extensive raw surface, will be promptly followed by dangerous, if not fatal, toxic effects."

COLOGNE WATER.

Mix together lavender, bergamot, orange, lemon, petit grain, of each 600 grains; rose, nutmeg, of each 25 grains; rosemary, rose geranium, of each 30 grains; orange flower water, triple distilled, 30 ounces; cologne spirits, 4½ gallons; water, a sufficient quantity to make 5 gallons. Let stand one month, and filter.—*Review.*

TO RETARD OR HASTEN THE SETTING OF PLASTER.

Dr. Beacock, of Canada, says: "To delay the setting of plaster of Paris use a little vinegar; borax will also retard its setting. Sugar, salt and sulphate of potash will materially hasten the setting, as well as harden it; marshmallow toughens it. Marble-dust, mixed with plaster, prevents its expansion, makes it stronger and better able to withstand heavy pressure, especially good for celluloid work."

TO EXTRACT LIVING PULPS.

A few months ago a great many Canadian dentists purchased, at $25 each, a method by which a living pulp may be removed in from three to five minutes without pain. Each dentist purchasing gave bond to forfeit a large sum if by any means he allowed the secret to become known to any one not entitled to know and use the same. Notwithstanding the precautions used, the secret became known to a member of the Toronto Dental Society, who, believing in giving the greatest publicity to everything calculated to benefit the profession and the public, gave it still wider prominence. For the benefit of your readers who may not have paid for the secret, here it is, as good as if it cost $25:

Take a little piece of spunk, dip in alcohol or some other good solvent of cocain, then touch the moistened spunk to cocain crystals, place this in the tooth cavity, and place over it a piece of soft vulcanite. A broad instrument applied to the vulcanite with a steady, firm pressure will cause the cocain solution to be absorbed by the dentine and pulp. If you have a layer of sensitive dentine over the pulp, remove by means of a sharp bur, and apply a second treatment of the solution to the exposed pulp. After a few minutes of steady pressure the pulp may be removed without pain and the canal or canals filled at once before sensation returns, which will not be for about fifteen minutes. Try it, and you'll bless the discoverer, even if he hid his light under a bushel and retarded the progress of scientific dentistry by keeping the method a secret.—CANUCK, *in Weekly*.

Dr. S. B. Dewey suggested to the writer the use of chloroform instead of alcohol. Theoretically it should be better.—EDITOR *Indiana Dental Journal.*

MAKING DENTAL ALLOY; ORDER IN WHICH THE METALS SHOULD BE ADDED.

Mr. Thomas Fletcher considers it an error in making an alloy containing platinum to first melt this with the silver. Silver and platinum, he says, are difficult to combine, and still more difficult to keep uniform. On the contrary, platinum and tin combine energetically, with the evolution of intense heat, at a temperature below the fusing point of silver. First melt the most fusible metal, then add the others. In this manner the alloy can be made at a temperature not greatly exceeding the fusing point of the most fusible of the metals used, and overheating is entirely avoided. Want of knowledge on this point, no doubt, has caused the extraordinary statements as to the inertness of platinum in amalgam. It never got into proper combination, or was probably localized in the ingot —*The Dental Record*, London, June, 1898, p. 295.

RULES FOR EXTRACTING.

Never extract the cuspids because they are outside the arch. If the arch cannot be spread to receive them, remove the first bicuspid. In the majority of cases the cuspid will drop back into place without further assistance, but it is always well to instruct the patient to visit you often, so that you can keep the matter under observation.

CEMENT FOR BROKEN CASTS.

Dissolve sheet celluloid in ether, making a thick, creamy paste. Coat the broken surface thickly and hold together for a few moments, then allowing it to harden not less than three minutes before handling.—*Dental Weekly.*

MOULDING SAND.

Take ordinary bath brick finely powdered. Add about 40 per cent. to your moulding sand. It makes a cohesive, compact and sharp impression.—*Dominion Dental Journal.*

SENSITIVE DENTINE.

Apply fifty per cent. solution of sulphuric acid. It is an efficient obtundent; will do no harm, as it is self-limiting and is readily neutralized with a solution of soda bicarbonate.—F. T. VAN WOERT, in *Dental News.*

TO STICK PAPER ON GLASS.

Make a paste out of 230 parts of mucilage, 20 parts of water and 2 or 3 parts of aluminum sulphate, dissolving the sulphate in the water before adding the mucilage.

FOR MALARIA.

Grapes are almost as good as quinine for malarial troubles; and pineapple is a cure for sore throat.

THE BEST WAY TO OPEN A TUBE OF PYROZON.

Place the tube up to the neck in ice water, and let it remain until the paper label can be easily rubbed off, which remove. A large-mouthed bottle should be kept clean and dry for this purpose. A hole is cut in the center of the cork stopper large enough for the end of the pyrozon tube to pass through, just far enough to allow the file to reach the neck where the directions tell us to file. The pyrozon tube, as soon as it is removed from the ice water, is dried and pushed into the cork; then the cork is put into the large bottle, with pyrozon tube inside large bottle, and a sharp file is used. In this way I have had unfailing success. The cork prevents any jar or vibrations to the pyrozon tube, and there is no explosion that breaks it, as so frequently happens when only the wet towel is used. If the pyrozon tube should explode, the large bottle catches the fluid. The large bottle should be clean and dry, so that if the pyrozon tube breaks there will be no moisture to dilute the pyrozon.—DR. F. H. FIELD, in *Items.*

LIBRARY
COLLEGE OF DENTISTRY
UNIVERSITY OF CALIFORNIA
SAN FRANCISCO.

THE
Dental Office and Laboratory
FOURTH SERIES

Vol. XIV. PHILADELPHIA, MARCH, 1900. No. 2.

NICKEL, AND ITS USE IN DENTISTRY.

By Naaman H. Keyser, D. D. S., Germantown, Pa.

Read before the Pennsylvania Association of Dental Surgeons, February 13, 1900.

Nickel was discovered in 1751, by Cronstedt. It is a white-grey metal, resembling steel in appearance. Its symbol is Ni.

According to "The Scientific American," Prof. Richards, of Harvard University, who has been for some time investigating the atomic weight of nickel, gives it as 58.69; and, in the latest edition of "Schnabel," the specific gravity of cast nickel is stated to be 8.35, and 8.6 for rolled. Its tensile strength surpasses that of iron. It becomes magnetic on the application of a magnet or electro-magnetic current. Pure nickel is not oxidizable in the atmosphere, and it resists the action of salt and fresh water. Probably the apparent oxidation on nickel-plated dental instruments is due to the fumes of iodine or other drugs used in the dental office; or imperfect work in the plating. Nickel rapidly dissolves in nitric acid, and more slowly in sulphuric and hydrochloric acids. Caustic soda has no action upon it, and may be fused in a nickel crucible without undergoing any change. Some writers class it with the precious metals. According to Harris Medical and Dental Dictionary it melts at 2810° Fahrenheit, a temperature slightly above that required for melting iron and approaching the fusing point of platinum. Commercial nickel is exceedingly impure, containing arsenic, sulphur, etc. The chief use of nickel has been for plating or coating electrically other metals. This was invented by Dr. Isaac Adams, of Boston, in 1869, who patented a process of depositing nickel from solution of double salts of nickel sulphate and ammonium.

The first patent granted to Isaac Adams, Jr., of Boston, No. 90,332, dated May 25, 1869, is for "A Mode of Electro-Plating with Nickel," in which he claims the use of a solution of sulphate of nickel in a solution of sulphite or bisulphite of ammonia for deposition of nickel.

The second patent, No. 93,157, dated August 3, 1869, is more comprehensive. He claims :—

First. The electro-deposition of nickel by means of a solution of the double sulphate of nickel and ammonia, or a solution of the double chloride of nickel and ammonia, prepared and used in such a manner as to be free from the presence of potash, soda, alumina, lime, or nitric acid, and neutral, having neither an acid or alkaline reaction.

Second. The use, for the anode of the depositing cell, of nickel combined with iron, to prevent the copper or arsenic which may be present from depositing with the nickel, or from injuring the solution.

Third. The method herein described for preparing nickel and ammonia, and the double chloride of nickel and ammonia.

Fourth. The electro-plating of metals with a coating of compact, coherent, tenacious, flexible nickel, of sufficient thickness to protect the metal upon which the deposition is made from the action of corrosive agents with which the articles made of them may be brought in contact.

Fifth. The deposition of electro-type plates of nickel, to be removed from the surface on which the deposit has been made, and used separately therefrom.

It is particularly valuable for plating steel dental and surgical instruments, forming a hard, non-oxidizable, easily cleaned covering that takes and retains a beautiful polish. It has been used extensively in Switzerland, Austria and Italy, in the coinage of their fractional currency, and to some extent in the United States.

The Swiss and Italian governments use pure nickel in their minor coins. The Austrian government adds cobalt, copper, iron, silicon and carbon. These are very brittle, and the cobalt makes the alloy a very dark metal; when oxidized it turns black.

The United States five-cent pieces contain 25 per cent. of nickel and 75 per cent. of copper. Copper gives to nickel a brownish hue, exerts no injurious influence over it, so long as its proportions are less than one and one-half times that of the nickel. All the alloys with copper that contain one-third or one-half their weight of nickel, are called nickel-silver. Pure nickel may be classed among the non-poisonous metals, as very large doses seem to be necessary to produce a toxic effect; and its use in the mouth, or for culinary utensils, appears to be entirely safe.

According to the United States Dispensatory, a dog absorbed over five drachms of it in sixty days, and increased in weight. According to Prof. Leffman, the salts of nickel are distinguishable by their deep green color. Tests may be made for the presence of nickel by precipitating from solutions with potassium cyanide; this gives a green percipitate if nickel is present, with characteristic green crystals.

Directions for making quantitative analyses of nickel alloys, etc., may be found in a work entitled Quantitative Analysis, by J. James Morgan, F. C. S., published by Griffin & Co., London, in 1899.

The use of nickel is not advisable for permanent appliances in the mouth; but it is unobjectionable for those which are temporary; and it has, on account of its strength, stiffness and facility with which it may be worked, and other good qualities, a field of usefulness in regulating appliances and for other such like purposes.

Many nickel alloys are now offered to the dental profession under misleading trade names, or names that are, so far as giving any idea of their components, or of the composition of the alloy, meaningless. Thus we have band metal, white metal, etc. This places them in the same category with alloys for filling, preparations for devitalizing pulps, treating diseased conditions of the teeth or their surroundings, pain obtundents, etc., and other proprietary secret preparations.

Is it wise—indeed, is it right, to use blindly in the mouths of trusting patients, these alloys or preparations, the composition of which we are, as a matter of business, purposely kept in ignorance; or, in some cases, practically lied to, being led to believe that they are composed of other and less harmful components than they really are?

My criticism does not include such preparations as Listerine, borine, borolyptol iodol, zymocide, Pasteurine and others, the components of which are made known in their advertisement, or on the label on the bottle or package. When this is done we know, if these drugs are compounded with any degree of accuracy, what we are doing when using or prescribing them.

Many practitioners are now using Platinoid, Matinum, and dental alloy, as a substitute for gold in the construction of metal work. The dental alloy is generally understood to be silver alloyed with platinum; the proportions are not made public; but the fact that one firm has been making and selling it for some forty or more years, is a sufficient guarantee of its merit.

German silver is one of the oldest nickel alloys that has been used in the mouth for regulating appliances. There are several grades; the best contain copper, 55.2; zinc, 24.1; nickel, 20.7. By electro-plating any of the nickel alloys we use in the mouth with gold, we have a far better appliance than that made of gold, silver, or platinum; these metals being too soft when strength and elasticity are needed. The electro-plating, however, is necessary only when the fixture is to be worn a long time; in ordinary cases it is a mere fancy touch.

Platinoid is a German silver that contains from 1 to 2 per cent. of tungsten. This is made by melting phosphide of tungsten with a portion of the copper, then adding the nickel, next the zinc, and finally the remaining copper. The metal so obtained is remelted several times to render it uniform, during which operation a considerable part of the tungsten originally added passes into slag. It melts at about 2600° Fahrenheit.

It is a very white alloy, closely resembling silver, when polished. Its electrical resistance is 50 per cent. higher than German silver.

Coin or five-cent-piece metal, makes excellent bands in regulating appliances; it can be rolled as thin as the Angle metal for bands. It solders easily with silver solder or 18-karat gold solder. Coin silver will solder it, but with difficulty, as the copper in it oxidizes first. This metal also makes excellent screws and nuts. Nickel plate cut in narrow strips makes excellent strengtheners for rubber plates. These are similar to the Hall white metal bars.

Wessel's silver, a new alloy, manufactured by the Riverside Metal Co., Riverside, N. J., promises to be useful in all cases where nickel can be used. This alloy is an alloy of nickel with a percentage of silver added; and is manufactured into coffee urns, etc. It keeps its color much better than silver- or nickel-plated ware. I have used it in the mouth and find that the oxidation is very slight. This is an excellent metal for spatulas

---

(Elements of Metallurgy, J. Arthur Philips, 1891.)

used in mixing phosphate cements. Phosphoric acid has no action whatever upon it. It is now used for cutlery blades; it is non-corrosive, and sharpens to a good edge. In this latter respect it seems to stand next to steel. I have tested it with phosphoric acid, vinegar, tomato juice, etc., and find that they have no effect upon it. It will dissolve, however, in the stronger acids. All these nickel alloys make excellent matrices. They will withstand the sulphur in vulcanite rubber; making them very suitable for strengthening-bars, and the tongues we solder to gold-backed teeth in vulcanite work. One of the greatest disappointments in the dental use of nickel alloys, was found in the How screw posts. These were first made of a patent process wire, composed of nickel, 99 parts, and magnesium, one part—the latter metal converting the hard nickel into a malleable and ductile alloy. The addition of 1 oz. of magnesium to 60 lbs. of pure nickel, makes it malleable, rendering it suitable for rolling and stamping. The How posts were subjected to the most thorough and searching laboratory tests before they were placed upon the market. Mercury and weak acids seemed to have no effect upon them. The nickel posts had been in general use some time, when it was found that many teeth were discoloring: one case, a central incisor in which a nickel screw post had been inserted as a retaining screw to hold a gold filling, was found to be stained a pale green; while in contact with amalgam filling they were at times entirely decomposed, leaving nothing but a black, muddy oxide.

These untoward results were quite unlooked for; no laboratory tests to which they were subjected, even suggested their possibility. The result of contact with amalgam was especially a surprise, as they had been exposed to contact with mercury under all the varied conditions likely to be encountered in actual use; and even under the severest tests, long continued and frequently repeated, they gave no sign or suspicion to contra-indicate their use. No plausible explanation has been found for their rapid disintegration; and the fact that in many cases they have stood serviceable and uninjured under like conditions where they have completely failed, has so far proved a problem, inviting theories, while resisting solution.

As soon as this was noticed, they were immediately recalled; and Dr. How, who had suggested them, promptly published this unexpected behavior of the nickel alloy, and their manufacture was at once stopped. The How post is now made of platinized silver.

One firm, Johnson & Lund, has recognized the merits of nickel for regulating appliances, and has placed upon the market, nickel jack screws. These can be soldered with hard or soft solder, and do not rust so as to tighten the screws, as do those made of iron or steel.

Nickel bids fair to supersede platinum in the construction of small muffles, in furnaces for fusing the low fusing enamels used in porcelain inlay work, and in the construction of crowns and bridges.

The high fusing point, about 2810° Fahrenheit, enables it to withstand, at least for some time, the heat and impact of the gas blast, and to exclude from the work the damaging gases. Its comparatively low cost is another important item; rolled nickel costing about $1.25 per lb., while platinum is almost that per dwt.

The platinum muffles are generally made very thin, and in use sag down in the centre. The nickel can be made any thickness desired.

Ash & Sons manufacture cast nickel muffles so as to avoid the making of a joint.

Mr. Gartrell, an English dentist, is credited with suggesting the use of nickel for muffles, and to replace the clay slabs used in porcelain furnaces. He had been much annoyed by the clay muffles cracking, or otherwise admitting injurious gases when baking continuous gum work, entailing a vexatious loss of time and labor. Seeking relief from this he replaced them with muffles and trays made of nickel with very satisfactory results. He reports that his nickel muffle had been used "hundreds of times without cracking." In case of a minute crack developing from much use, it can be, he states, "plugged with fire clay, and still be almost as good as before." He states that it withstands the highest heat required in his use of porcelain. I presume that he uses some form of a gas furnace. (See Dental Record, London, Vol. XV, Jan., 1895; page 13.)

FORTIETH PAPER.

LEADING QUESTIONS AND ANSWERS FOR DENTAL STUDENTS.

By Theodore F. Chupein, D. D. S., Philadelphia, Pa.

Q. How is it best to follow the direction of the root canal?

A. Once the entrance to the root canal is gained, it is best to pass a fine Swiss broach into the root, feeling your way as this is done. In this way the direction *may be noted*, and the canal increased in size and made more direct and accessible with the Gates-Glidden or Maury root canal reamers. If this be not done, and a drill used to increase the size of the canal, or to clean away the shreds of dead nerve clinging to the sides of the canal, there might be a liability of not following the direction of the root canal and of perforating the root.

Q. What do you understand by the gums?

A. It is that thick, dense, vascular tissue which lies in contact with the teeth, covering the lower jaw bone for a certain distance until it unites with the mucous membrane, and in the upper jaw covering the outer ridge until it unites with the mucous membranes of the lips and cheeks, and the arch of the palate,or roof of the mouth, until it unites with the mucous membranes which extend to the soft palate and throat. Its area may be somewhat defined by the shape and size of plates worn on the upper and lower jaws.

Q. What is its color in health and disease?

A. In health it is of a pinkish color; in disease it may be either pale pink or almost blood red. In the anæmic condition the gums partake of the same paleness as do the lips and complexion; in the plethoric or hypertrophied condition the gums assume a highly puffed and reddish appearance.

Q. What are the gums technically called?

A. The gingivæ.

Q. What is supposed to be the use of the gums?

A. They form a cushion or protection to the necks of the teeth along the alveolar border where they are continuous with the periosteum of the alveoli.

Q. Do the gums adhere to the teeth?

A. To a certain extent they do, yet we find a free margin, of one-twelfth of an inch, around the necks of the teeth to which the gums do not adhere.

Q. Are these localities subject to disease?

A. They are, and are termed gingivitis, which is a disease induced by the influence of mercury, iodide of potassium, or other medicines, as also from constitutional causes.

Q. Do the gums embrace the teeth firmly below the free margins of which we have spoken?

A. They do, but when attacked by gingivitis or inflammation of the gums from the effect of large doses of mercury, which is termed salivation, this strong adhesion seems to be affected, since the teeth become very loose. Gingivitis is also induced by scurvy, from the eating of large quantities of fat or salt meats and from the lack of general cleanliness. There is also a form of gingivitis to which the gum margins of young persons are affected. The gum margins become very red and puffy, bleed at the slightest touch, and serve sometimes to aid in the deposit of tartar.

Q. Is there any treatment recommended for this latter?

A. Careful cleansing of the gums, a brisk saline cathartic, and the eating of oranges or other vegetable acids have been recommended.

Q. Does gingivitis ever lead to graver disease than the simple inflammation of the gums?

A. It does.

Q. Why?

A. Because, if from any cause, as for instance an exposed nerve in a tooth, the patient refuses to eat or chew his food, for fear of causing pain, the teeth on that side of the mouth which is not used, collect large quantities of salivary calculus, favored by the flabby and inflamed condition of the gums. Not only is calculus observed deposited on the necks of the teeth, but quantities of food debris, lodgment being favored by the deposit, and leading to calcic inflammation.

Q. What do you understand by calcic inflammation?

A. It is an inflammation of the gums and peridental membrane, caused and continued by the increasing deposits of tartar at the necks of the teeth.

Q. Besides the cause of the accummulation of tartar about the teeth already spoken of, are there other causes?

A. Yes, a tendency to this deposit is found to be hereditary; or it may be favored by the irregularity of the teeth, preventing them being properly cleansed; or it may be induced by uncleanliness; or it may be induced by the form of the teeth or condition of the gums; or it may be accelerated by the pernicious habit of eating soft food, whereby little friction is exerted against the teeth.

Q. Is this calcic inflammation a grave disease?

A. It may be considered grave, because of the number of teeth lost by permitting it to run its course, many teeth being lost in this way, if not more than by caries, but when properly understood, it is not a disease which does not yield to proper treatment.

Q. To what is calcific inflammation due?

A. To the deposition of tartar upon the necks of the teeth.

Q. Is this deposit of tartar only of one kind?

A. No. It presents two forms, but sometimes intimately blended.

Q. What are the sources of these deposits?

A. One form, the saliva; the other form, the serum which exudes from the tissues, when these are diseased.

Q. Where are these deposits noticed?

A. Salivary calculus is generally deposited on the crowns of the teeth near the gum margin; serumal calculus always deposited under the free margin of the gum. The deposits are always favored by the conditions which have been noted, simple gingivitis contributing to the development, being the result of any pathological condition of the gums. These deposits occur most frequently on the necks of the teeth beneath the free margin of the gum, yet they are found sometimes near to the apex of the root.

Q. What is the nature of serumal tartar?

A. It occurs as a ring or nodule of very hard brownish deposit under the free margin of the gum, adhering very firmly to the root.

Q. Is it isolated or general?

A. Sometimes it is isolated, yet it has been observed on a great many of the teeth.

Q. Have these deposits any particular locality?

A. Salivary tartar accumulates to the greatest extent in the neighborhood of the mouths of the salivary ducts, but serumal tartar is not limited to these localities.

Q. How is it supposed that serumal tartar first starts?

A. By an irritation of the gingivæ.

Q. What causes this irritation?

A. It may be caused by the neighboring deposits of the ordinary salivary tartar, or by an accumulation of micro-organisms, or by the impaction of food, or by any local irritation due to constitutional causes. If ever so slight a deposit takes place, it becomes, at once, a source of irritation, which continues to increase, keeping the gums and the border of the peridental membrane in a constant source of inflammation.

Q. Does this deposit proceed rapidly?

A. No. Rather slowly, yet insiduously, until the peridental membrane is destroyed, causing a recession of the gum and a loosening of the tooth, as more and more of the peridental membrane is destroyed.

Q. What is observed if the gums are pressed on the teeth having these deposits?

A. Pus is seen to exude from the inflamed and spongy gums, which bleed at the slightest touch.

Q. What if these conditions continue undisturbed?

A. The peridental membrane becomes more and more diseased; pus becomes more and more profuse; the ordinary salivary tartar is deposited above the rim of the serumal tartar, or this latter may extend farther on the root towards its apex, and the tooth may be lost by lack of the supporting alveolus.

Q. Where do we observe salivary calculus to be most profuse?

A. In the neighborhood of the mouths of the salivary ducts.

Q. Where are these located?

A. In the upper jaw near the first or second molars, and in the lower jaw under the tongue, near the lingual surfaces of the incisors.

Q. Is it always confined to these localities?

A. Generally, but not always. It spreads from these points, sometimes going around the entire denture. The deposit on the lower teeth forces its way between the teeth covering these, particularly on their lingual surfaces, to such an extent as to almost entirely cover them. This is not observed to a great extent on the front teeth of the upper jaw, nevertheless these are sometimes considerably coated. Besides this we often see both kinds of tartar on the teeth; the serumal being dark, hard and difficult of removal, forming sometimes a ring and sometimes a nodule under the gum.

Q. How are these two kinds of tartar distinguished?

A. Salivary tartar is generally of a light creamy color, and is chalky in its nature and not very adherent, while serumal tartar is dark brown, hard and very adherent, being difficult to remove.

Q. Which of these varieties is the more destructive?

A. The salivary tartar. It is deposited in much larger quantities, and is more destructive in its effects on the integuments; none of the tissues lying in contact with it but are irritated, inflamed and diseased.

Q. Does it affect the peridental membrane?

A. Although this may be inflamed at such points near to the deposit, when this is cleared away it soon recovers its health.

Q. What is the effect if this tartar be permitted to accumulate in large quantities?

A. It causes the teeth to loosen and finally to drop out. This is particularly noticed in the lower incisors.

Q. Does the amount of the deposit lead to this result?

A. No, not unless the encroachments of the tartar extend through between the teeth as well as on their labial surfaces, then we notice that the teeth are quickly loosened. A large quantity of tartar may cover the entire lingual surfaces of the lower incisors, yet if it does not encroach between these teeth and on their labial surfaces, these teeth may remain comparatively firm.

Q. Is it necessary to remove this deposit frequently?

A. For some persons it is; because it is not the amount of the deposit which does the harm so much as its long continuance next the soft tissues. If permitted to remain in contact with these for extended periods, these tissues lose their tone from the excess of irritation which the deposit keeps up, and often it is found difficult to nurse them back to health, hence in persons whom we find predisposed to excessive deposits, the tartar should be frequently removed.

(To be Continued.)

HOW MUST I ARTICULATE A SET OF ARTIFICIAL TEETH?

By Theodore F. Chupein, D. D. S., Philadelphia, Pa.

It is pretty well conceded now, that it is as important in making a set of teeth satisfactory to the wearer, that they should be as correctly articulated, as that the impression should be perfect.

In the first place, we set up the teeth in wax, for a vulcanite denture, *the upper first* and the lower afterwards, removing the wax from the articulating wax of the articulator, tooth by tooth, until all the upper teeth are in place, and keeping the cutting edges of the teeth on a line with the articulating wax, which we had placed on the trial plates when taking the bite, to ascertain the necessary fullness as well as the length, also being sure to keep the teeth as nearly over the ridge of the jaw as possible. In doing this, it is well to remember that the *lateral incisors* should be a mere trifle shorter than the centrals, *the point of the cuspid* on a line with the cutting edge of laterals, or the merest trifle longer, otherwise we have a "dog-like" expression, *and the points of the first and second bicuspids* on a line with the points of the cuspids. When these teeth are set up and tried on a level surface they should all touch. *The first molars* should be a trifle shorter than the second bicuspids, and *the second molars* a trifle shorter than the first molars. So much for the upper teeth.

The upper teeth being thus arranged, the lower teeth are added to the lower trial plate by removing a bit of the articulating wax from this, the same way as was done for the upper teeth, and placing each tooth in position. Regarding this arrangement, it is important to place the teeth in the following order:

The lower centrals will cover a little more than one-half ot the upper centrals.

The lower laterals will take in this as well as one-half of the upper laterals.

The lower cuspids will close between the upper laterals and cuspid.

The first lower bicuspids must close between the upper cuspid and first bicuspid.

The second lower bicuspids must close between the two upper bicuspids.

The first lower molars must close on the remaining half of the second upper bicuspids and half of the first upper molars; and, finally,

The second lower molars must take in the remaining half of the second upper molars, permitting the other half of the second upper molars to extend over or remain without occlusion.

When the six upper and lower teeth are thus arranged, the set screw of the articulator is slightly turned so as to separate these teeth the thickness of a visiting card from each other; then the lower bicuspids and molars are made to articulate with the upper cuspids and molars in the order which we have indicated. In doing this the teeth should be viewed both from the outside as well as the inside, to see that the cusps and sulci antagonize intimately. It is for this reason that *plain teeth* are so much better than *gum sections teeth* in obtaining a correct articulation. If there should be difficulty in obtaining the articulation we have indicated, it will be better to leave a space between the teeth, or twist a tooth, in order to increase or decrease the room, rather than to fail in obtaining this correct articulation. This may be accomplished either by the moving of the teeth on the upper or lower plates.

The four bicuspids and first molars of each plate are the teeth which are expected to do the work of chewing the food. These are to articulate closely and correctly, as neither of the six front teeth, upper or lower, should be permitted to touch. Neither should the second molars of either plates be allowed to press hard on its antagonist.

The bicuspids and first molars of each plate should strike simultaneously. This should be closely watched. To ascertain this, when the plates are finished put them together as they have been articulated, and by pressing the plates, ascertain if any tooth or cusp of a tooth is so prominent as to cause a pivot at this point of contact while they are held in the fingers. If this cannot be determined by the eye, paint the articulating surfaces with a thick solution of India ink, which will indicate, when the teeth of the plates are brought together, where the prominence is, by leaving a black mark at the point of contact. This point must be ground away with small corundum points in the dental engine until not the least motion or pivoting can be detected.

Next take a strip of cardboard, or a strip from a visiting card, about a half-inch wide, and placing this between the upper and lower front teeth, while the plates are held together in the fingers of the left hand, draw on the strip with the right hand. If the strip resists the pulling, it shows that the front teeth are too close to each other and that they must be ground until the strip can be pulled between them freely. In relieving this pressure on the six front upper and lower teeth, these teeth may be cut with corundum points in the dental engine without mutilating their shape. If this pressure be permitted to remain uncorrected, the plate will be tilted from behind and the adhesion loosened. The same procedure may be pursued with the second molars.

When constructing an upper denture alone, where the lower natural teeth remain, the same arrangement of the teeth is to be observed. Should there be a tilting forward of a second lower molar this should not be permitted to antagonize at all as, if done, it will surely loosen the plate, however well it fits, or however strong may be the adhesion.

It is more difficult to antagonize sets of this kind than entire sets, as the pivoting of the teeth cannot be so well ascertained in these cases as in the plan we recommended for entire sets.

It can be done, however, if the dentist will go to the trouble of taking a plaster impression of the lower teeth, and into it running a fusible alloy die, and using this to place into the imprint of the articulating wax. As slight as is the wear on plaster teeth, it is sufficient to defeat the object. After the upper plate is made, it can be tried on the articulating die, and any inaccuracy corrected in the same way as is recommended in entire sets.

AMERICAN MEDICAL ASSOCIATION.

Chicago, Feb. 1st, 1900.

Dear Doctor:—The annual meeting of the American Medical Association will be held in Atlantic City, June 5-8, 1900.

It has always been the aim of the officers of the section on Stomatology to have such papers presented to the section of interest to physicians and dentists.

As secretary of the above section, I take pleasure in asking you to present such a paper.

Trusting I may receive a favorable reply, I am,

Very truly,

EUGENE S. TALBOT.

KENTUCKY STATE DENTAL ASSOCIATION.

Louisville, Ky., Feb. 2, 1900.

Dr. T. F. Chupein, Editor,
Dental Office and Laboratory,
Philadelphia, Pa.

Dear Doctor:—I wish to call your attention to the change of date of the meeting of the Kentucky State Dental Association. On account of change of meeting of Confederate Association, and for the purpose of getting railroad rates, we too have changed our date to May 29–30–31. We have some thirty papers promised for the meeting, and nearly as many clinics, and we will still add others to the list. Please be kind enough to announce this change of date and give us as much other notice as you deem wise. We have men on the program from about twelve states; don't fail to come and meet with us, and we promise you a fine time.

Yours fraternally,
F. I. Gardner, D. D. S., Secretary.

INTERNATIONAL DENTAL CONGRESS.

Report of Transportation Committee.

The Sub-Committee on Transportation has completed arrangements with the well-known tourist firm of Thomas Cook & Sons, No. 251 Broadway, New York, so that dentists who expect to attend the Congress to be held in Paris, commencing August 8th, 1900, may secure for themselves and families, steamship and railroad tickets and hotel accommodations at the minimum of expense and trouble.

In making these arrangements the committee has taken into consideration that while some of the delegates may wish to secure only transportation from New York to Paris and back to New York, many delegates will wish to visit other parts of Europe during the summer, and they have planned the following tours to assist such in the selection of a trip that the time at their disposal and their means will suggest.

Tour 1.

A. From New York by Red Star Line steamer "Friesland," on July 18th, for Antwerp, thence rail via Brussels to Paris, returning same way to New York. First-class passage, providing berth at minimum rate for two-berthed room, $157.85.

If traveling second-class from Antwerp to Paris and return, fare would be $4.65 less.

By traveling on steamers "Kensington" or "Southwark" of same line, fare would be reduced.

B. Via Cherburg (North German Lloyd service).

From New York by North German Lloyd steamers, "Barbarosa" and "Friederich der Grosse," sailing July 12th and 19th respectively for Cherburg, thence rail to Paris, and return same way (twin screw service only). First-class passage, providing berth in room for two persons, (minimum rate) $177.

C. Via Cherburg (Hamburg American Line service).

From New York by Hamburg American Line steamers, "Pennsylvania" and "Pretoria," sailing July 14th and 21st respectively to Cherburg, rail to Paris, and return via Boulogne-Sur-Mer and Hamburg American steamer (twin-screw service) to New York. First-class passage, providing minimum fare for berth in room for two persons only, $184.25.

Lower fares can be obtained if occupying berth in room with two or three other occupants.

D. Via Boulogne-Sur-Mer (Holland American Line).

From New York by twin screw steamers "Potsdam," "Statendam" and "Rotterdam," sailing July 7th, 14th and 28th respectively to Boulogne-Sur-Mer, thence rail to Paris, and return same way to New York. First-class passage, providing minimum fare for berth in room for two passengers, $163.

If traveling second-class from Boulogne to Paris and return, fare would be $3.80 less.

Lower fares can be made by leaving on steamer "Sparndam," July 19th.

Tickets can also be arranged via Southampton or Liverpool at proportionate fares.

TOUR 2.

To provide hotel accommodations in Paris for two weeks (14 days and 13 nights), at Grand Hotel du Trocadero, carriage drives for three days, including excursion to St. Cloud and Versailles, 20 tickets of admission to Exposition, and transfers to and from railway station to hotel, $65.

TOUR 3.

One week's tour to Switzerland from Paris, visiting Lucerne, Interlaken, Thun, Berne, Lausanne, Lake Leman, Geneva, including hotel accommodation, sight-seeing, etc., second-class railroad, $50.

TOUR 4.

One week's tour from Paris to Mayence, thence steamer on Rhine to Cologne, rail to Amsterdam, The Hague, Rotterdam, Antwerp, Brussels, Antwerp, Harwich, London, including second-class railway travel, first-class on steamers, hotel coupons (3 meals per day, with lodging), $42.50.

Those traveling via Cherburg can return by steamers of same line from Southampton, and so make short tour from Continent through England in connection.

There is a U. S. revenue tax of $5 upon each ticket, regardless of the number of passengers in whose name it may be made out.

Should any one wish to make a longer tour than any of the foregoing, or one with a different route, Messrs. Cook & Sons have such a large variety of tours already planned, that there need be no difficulty in making a selection to suit the taste, means, or the time at the disposal of any one.

The war in South Africa has caused the withdrawal of many of the English steamships. Passenger accommodations across the Atlantic will be less than usual this summer, while the Paris Exposition is attracting great numbers, so that the committee wishes to impress upon delegates the great importance of securing their steamship accommodations at once.

Address all communications regarding steamships, railroads, hotels, etc., to Messrs. Thomas Cook & Sons, 251 Broadway, New York.

Transportation Committee
A. W. HARLAN,
W. E. GRISWOLD,
W. W. WALKER,
WILLIAM JARVIE, Chairman.

EDITORIAL.

WELCH'S DENTAL MAGAZINE—"THE DENTAL CENTURY."

We commend this journal to the members of the dental profession. It always has something good in its pages, and the brief way it is put commends it particularly to the busy dentist, but we recommend that the leaves of the journal be cut. 'Tis a nuisance to cut them.—ED.

BLACK RUBBER.

It frequently happens that in peeling the cloth separating the sheets of black rubber, this rubber will adhere so firmly to the cloth that it is next to impossible to separate it, and it has to be used in such small bits as we are capable of removing, which becomes very tedious and disagreeable. I have found, to avoid this, that if this rubber be cut into strips with the scissors, and thrown into a tumbler of cold water, the cloth may be readily peeled from the rubber.—T. F. CHUPEIN.

SELECTED ARTICLES.

BINDING WIRE INSTEAD OF LIGATURES.

Few of the difficulties which confront the dental surgeon from time to time are more harassing than the apparent impossibility of satisfactorily applying the rubber dam in many cases where its use appears to be indispensable from the need of absolute dryness. Chief among such are mesial or distal cavities (especially in the lower jaw), extending at the cervical edge far below the gum. Often, after one or two visits, at which careful filling with temporary gutta-percha has reduced the interstitial gum tissue to the level of the cervical edge of the tooth, the real difficulty begins.

It is found that no matter how tightly or carefully a silk ligature be tied round the tooth, it is impossible to carry the rubber over the cervical edge or to retain it there. After a little reflection, however, it is not difficult to see how this trouble arises.

It is comparatively easy to push the gum away between the teeth to almost any extent, but this is not the case with that covering the external and internal alveolar plates. The consequence of this is that the gum margin assumes an irregular line, and the ligature—silk or such like—which, like the rubber, assumes, when taut, a straight line—fails to follow this.

For some considerable time past I have successfully overcome this by using, instead of silk, binding wire, twisting it up with pliers instead of tying. This can be easily pushed into position with a blunt instrument, carrying the rubber before it, and will maintain its shape in a most satisfactory manner.

I have used also a thicker binding wire in ordinary distal cavities when they happened to be situated in the last tooth in the jaw, the free ends left after twisting being bent and utilized to hold the rubber dam away from the back of the tooth.

I have no hesitation in stating as my firm belief that often the power of excluding saliva and securing absolute dryness, or the contrary, may mean the retention or loss of a valuable tooth or root.—W. M. GABRIEL, in *Jour. Brit. Den. Asso.*

NERVANIN.

Within the past year orthoform has filled a place that has, heretofore, been practically unoccupied by any remedy possessing the necessary qualifications of a typical anæsthetic. Such a remedy should be non-poisonous and of slow solubility. None in use was non-toxic; all were too rapidly absorbed, and their action of but short duration. The slow absorption of orthoform by the tissues, its absolute non-toxity and antiseptic properties fulfill all the requirements for such a preparation. The great success attending its use made it most desirable to obtain this salt in a soluble form for subcutaneous injections. The inventors, Prof. Hinborn and Dr. Heinz, have succeeded in obtaining a soluble compound of neutral reaction, and have named it "nervanin." Experiments have demonstrated that nervanin is but one-tenth as toxic as cocaine. Eight grains was found to be the maximum dose that could be administered subcutaneously without injury, and the experience of Drs. W. Rotenberger, Marcus and others confirms its practical non-toxicity.

For the extraction of teeth, a 5 per cent. solution is employed, and like eucaine, the solution may be boiled without decomposition. A sterilizing agent need not be added, as nervanin, in 1 per cent. solution, prevents bacterial growth.

I believe that a 5 per cent. solution of nervanin, if properly injected into ordinarily healthy gum tissue and allowed to act for from three to five minutes before operating, will produce a deeper, more profound and more prolonged anæsthesia than either cocaine or eucaine B. In extracting difficult roots, patients have experienced no pain when the alveolar process was cut through to grasp the root. I have never obtained this immunity from pain with other anæsthetics, and therefore believe that it penetrates deeply. The anæsthetic effect is prolonged for a number of hours after operating, as careful inquiries made of patients for whom I had extracted, record absolute freedom from after-pain. Careful attention was given to the gums, to note whether any irritation was produced, and, in every case examined, the gums rapidly returned to a normal condition without œdema or sloughing. The non-irritating properties thus shown will especially recommend themselves to all who do not wish to treat "sore gums."—DR. A. D. KYNER, Blue Mound, Ill., in *Items of Interest.*

EUCAINE.

Of the many conditions with which the dentist is daily brought in contact, nothing is more important than *pain;* and nothing more to the credit of the dentist or more satisfactory to the patient than the relief of pain.

In the pain produced in extracting teeth nothing is more potent than eucaine as a local anæsthetic. In the majority of cases nothing will be so satisfactory and efficient. With the immense advantages which accrued to dental surgery with the discovery of the anæsthetic properties of cocaine, and its universal use, not only in special branches, but in surgery and general medicine, it would seem almost unnecessary to seek for other drugs with a similar effect; but the occasional alarming toxic effects which are obtained from the use of cocaine, are good reasons why the claims of any local anæsthetic should be investigated, with the hope that chemical science may offer for our use as efficient a drug as cocaine, and one without its dangers and oftentimes disastrous effects. Such a drug, it is claimed, was to be found in the synthetic compound known as eucaine, which was offered to the profession a little over a year ago, with a formula as unpronounceable as it is unintelligible, yet possessing marked anæsthetic properties.

The advantages claimed for its use are, first, superiority in anæsthetic property and extended duration of anæsthesia; second, ability to be used without danger in large quantities, and with absence of any toxic effects upon heart or circulation.

Eucaine is an artificial or chemical product. There is little chemical difference between eucaine and cocaine, the only important physiological and therapeutic action being the difference in their toxic effect. I have used as much as three syringefuls of an eight per cent. solution on one patient without any toxic symptoms, and no complaint expressed by the patient.

Another advantage which eucaine possesses over cocaine is the greater permanence of the solution. Cocaine is decomposed by boiling, while eucaine is not. Before a drug can make good its claim to being an ideal local anæsthetic, it must fulfill three conditions: it must be the means of reducing the patient's pain to a minimum, of increasing the operator's facilities to a maximum, and it must cause no unpleasant effects during its application or afterward. And before condemning a drug as not fulfilling these conditions it is as well to take into consideration the method of application, the temperament of the patient, and the skill of the operator. Upon the method of application of the drug will largely depend the degree of anæsthesia produced, and consequently the degree of comfort afforded to the patient and the facility to the operator.

Eucaine has been described by some as not such a good anæsthetic as cocaine. It is possible that with experience we may incline to the view that proportionately as it is less toxic it is less powerful; but I have found it efficient, and, as this may be due to the method of application, it may not be amiss to enter into further detail on this point.

In the first place, the syringe must be in perfect condition. A fatal mistake is to attempt to inject with a leaking syringe; it is simply impossible to look for good results.

A good syringe to use is an all-metal syringe that may be thoroughly cleansed by boiling. The drug should be boiled immediately before using to insure the best results.

The needle may be inserted at any point the operator may desire along the root or roots of the tooth. Enough pressure must be brought against the syringe to cause a decided blanching of the gums in the immediate locality at least. Without this indication we cannot expect a painless operation.

If we be careful to not inject deep into the muscles we will not have any swelling after-effects, as it is usually carelessness that leads to this, and not the drug.

I think an eight per cent. solution is good for the extraction of teeth, and I advise eucaine because it is rapid in its action, comparatively safe, produces positive and prolonged anæsthesia, and causes no serious after-effects.—DR. D. W. MONROE, Washington, D. C., in *Dental Cosmos.*

BRIEF SUGGESTIONS.

When children are suffering while teething and the gums are inflamed and swollen, spare not the gum-lancet, but cut freely and cut deeply if necessary. Good results almost invariably follow.

In the extraction of teeth the use of the gum-lancet is not essential, except to secure the easy application of the forceps so as to avoid the crushing of roots.

In treating for the cure of Rigg's disease, persist in the use of scalers (smooth-edge) as long as deposits on the roots oi teeth are perceptible to touch. In the event of failure to remove deposits successfully with scalers, it will be useless to apply acids, for none known will dissolve them that can be placed in contact with the soft tissues without serious injury.

When teeth and gums are in a comparatively normal state, it is unwise to recommend the daily or weekly use of medicated dentifrices. Too much treatment often proves injurious.

Avoid the use of large, close set, stiff bristle tooth-brushes. They are never desirable, as they are relatively non-effective in the removal of debris and deposits, and frequently do injury to the gums.

For removing deposits and cleansing the proximal surfaces of teeth, the use of rubber strips or narrow linen tape is preferable to, and more effective than floss silk. Once used their effectiveness will be recognized.

The daily use of a properly-shaped goose quill or whalebone toothpick is a good practice, and should be recommended.

Treat children's teeth (temporary) with properly-shaped excavators, burs and chisels and the free use of silver nitrate. Such treatment in many cases is better for the comfortable preservation of teeth than excavating and filling.

In excavating cavities in permanent teeth for filling with any material, be careful to remove all defective enamel and dentine, regardless of the possibility of pulp exposure.

Never attempt the removal of the pulp tissue from root canals, short of a week or ten days after devitalization. A certain degree of softening of pulp filaments must be effected for successful removal.

To obtain the best results in filling with gutta-percha, be careful not to stuff cavities with large pieces ; small pieces, not more than a sixth or eighth the size of the cavity, work to better advantage. Pack carefully and with force from the base of the cavity, with heated pluggers instead of heating the material. Never apply chloroform to surface of fillings. A good article of gutta-percha rightly manipulated is quite durable, and the results generally satisfactory.

For cleansing teeth and especially for the removal of green stain, the most effective remedy, one never failing in its results, and entirely harmless, is a weak solution of sulphuric acid and pulverized pumice. The strength of the solution should be regulated to suit respective cases, varying from one of acid (C. P.) to fifteen or thirty of water. From three to five minutes is sufficient time to obtain the results desired. A solution in such proportions, used daily for months, would not produce any perceptible injurious effect upon the enamel of the teeth, but

LIBRARY
COLLEGE OF DENTISTRY
UNIVERSITY OF CALIFORNIA
SAN FRANCISCO,

would often prove beneficial to the gums, as is evidenced in the use of the remedy in the treatment of Rigg's disease.

Never fill deep cavities, large or small, with gold or amalgam, without placing a non-conducting material on the base of the cavity to protect the pulp against thermal shocks. It will require a little more time for the performance of an operation, but much lessens the danger of discomfort, and the risk of devitalization of the pulp.

In a large percentage of cases it is best not to decide until a cavity is thoroughly prepared, what material for filling shall be used. This is the true line of eclectic, conservative and safe practice.

It is malpractice in preparing cavities for filling to cut away and destroy healthy enamel in order that gold may be displayed ; and is a species of malpractice of which some dentists are often guilty.

A multiplicity of medicinal remedies in dental practice is objectionable, as but few are needed. A dozen, or even a less number, judiciously selected, will fully meet the general demand in daily practice.

Never crown or bridge on roots diseased at the apex. Unhealthy roots are seriously detrimental to health, and often set up grave disturbances of the nervous system. Crowns and bridges are sometimes needed, and when wisely and judiciously adjusted prove a blessing ; but are harmful and the cause of much annoyance and discomfort when placed upon diseased roots.

Never use anæsthetics in the extraction of teeth or roots, unless the patient is very nervous, and the operation promises to be tedious and painful, and then employ them under protest. The free use of anæsthetics in the operation of extracting is the chief cause of the daily reckless sacrifice of thousands of teeth that might be successfully treated and made useful for many years.

To indulge the whims of patients in dental practice, when it conflicts with good judgment and honest conviction, is unwise and censurable. A dentist should make his diagnosis carefully, and then use his own judgment as to the character of the operation, the selection of material, and the use of it.

Rarely, if ever, would a physician consent to remove any member or an organ, however badly diseased, if sure that treatment would ultimately effect a cure. The dentist should be equally conscientious with regard to the preservation of diseased teeth.

Patients confide in our judgment and integrity, and we must deal justly with them, preserve the natural teeth when we can, and consent to extraction only when all treatment has failed.

To avoid errors in practice we should carefully examine each case, considering well its every feature before giving advice or entering upon treatment. As dentists we owe a threefold duty—duty to our patients, to the profession, and to ourselves; and for the proper performance of these duties, should have not only clean instruments and clean surroundings, but clean hands, a blameless purpose, and an unsullied integrity. —B. F. ARRINGTON, D.D.S., Goldsboro, N. C.

PRACTICAL PLACE.

ADHESIVE CEMENT FOR PLATE- AND BRIDGE-WORK.

It is always desirable to have on hand a reliable cement for repairing plaster impressions, for the temporary adjustment of clasps upon plates, for the "waxing up" of teeth in plate- or crown-work, etc., and the following formula is presented for that purpose by Professor W. F. Litch:

Take of—

Pitch, ...	100 grains.
Gutta-percha, ...	100 grains.
Gum dammar, ...	150 grains.

Process.—Melt the pitch in an iron pot over a sand-bath; cut the gutta-percha into small pieces, and add piece by piece, stirring constantly until all are thoroughly dissolved, then add the gum dammar, and continue stirring until it is melted and completely mixed with the other ingredients.

Finally pour the melted mass into a large basin of cold water, and before it has entirely hardened remove and cut into strips of suitable size.—*International.*

TO REMOVE LIVE PULP.

In removing hypertrophied or even live, healthy pulps, Dr. Goble says: First dry the exposed pulp and place on it a crystal of phenic acid; it is highly deliquescent, and will extract moisture from the pulp tissue and sear it; with a fine needle inject cocaine solution, and remove the pulp. There is no pain whatever in the operation if the work is done rapidly.—*American Dental Weekly.*

STRENGTHEN PLASTER TEETH.

In partial cases the teeth on the models so often get broken. This annoyance can be easily averted by placing a tack in the impression of each tooth before the plaster is poured for the model.—*American Dental Weekly.*

We do not think a tack good for strengthening plaster teeth, for if we desire to break off the tooth, as we sometimes have to do in making dies, the head of the tack would prevent. To strengthen plaster teeth on the models of partial cases, we use "ladies' dressing pins," cutting off the heads. In this way the plaster tooth can be broken from the model by sawing the tooth until the saw strikes the pin, when it can be broken and accurately replaced on the model, and made as strong as it was before, with thin phosphate cement.—ED.

HOW TO DUPLICATE PLASTER MODELS.

Dr. Eug. Muller's method of reproducing plaster models in any number wished may be a good one if, as he maintains, his preparation does not produce shrinkage. The following is his method as described in the *Schweizerische Viertel Jahrsschript*: About 150 leaves of common gelatin are soaked in cold water for one or two hours. This mass is then boiled and four or five ounces of oil are gradually added, constantly stirring the mass. The model is now placed in an enameled vessel and the mixture poured over it. After three hours the mould becomes hard, the model is removed, and any number can be poured.—F. A. B.

FOR TOOTHACHE, PAIN AFTER EXTRACTION, ETC.

Dr. Welch extols the following so highly, and its uses are so varied and valuable, we present it for those who have not tried it:—

Best alcohol, ...	1 ounce.
Chloroform, ...	2 ounces.
Sulph. ether, ...	¾ ounce.
Gum camphor, ...	½ ounce.
Laudanum, ...	⅛ ounce.
Oil of cloves, ...	½ dram.

For toothache, plug the carious tooth with cotton saturated with this cordial. For after-pain in extracting, press a good quantity of the saturated pledget well up in the socket, and allow it to remain for an hour or two. If there is fear of hemorrhage, place a little powdered tannin on the side of the pledget first entering the socket. You can also relieve the most stubborn toothache of pregnancy by first bathing the tooth and gums with cotton soaked with it, having the patient draw in the breath a few times, so as to pass the air over it. Change the saturated cotton once or twice, if necessary. It is sure to soothe the pain and the whole nervous system. For toothache in pregnancy, when suffering has been fearful and the prostration dangerous, he has always administered it with relief. Rubbed on the skin it is very penetrating and of frequent use in all painful swellings and bruises, if the skin is not abraded. In the dental office it makes the dentist master of the situation. He has studied, worried and experimented, and bought everything, in hopes of finding "the nectar distilled in the garden of the gods"; but never found it till he found this.—*American Dental Weekly.*

DENTAL WAX.

The following formula is taken from the *Dental Review*:—

French chalk, ...	14 parts.
Gum kauri, ...	8 parts.
Stearine, ...	4 parts.

Melt the stearine over a water-bath, add the finely powdered gum kauri in small quantities. When dissolved, sift in slowly the chalk, and stir constantly till cold. Color with carmine, if desired.

A CASE IN BRIDGE-WORK.

The patient had a bridge put on by an excellent operator some three years ago. He had used the lower third molar and the first bicuspid as abutments. Recently she called to have me remove the bridge, as the bicuspid had broken off owing to the constant friction of the band which had been used instead of a shell crown. The bridge had become an irritant and a worthless encumbrance.

I removed the bridge, put the root in order, made a solid gold crown with a heavy platinum pin, first fitting the pin in the root and a tiny gold band around the stump just under the free margin of the gum. I united the band and pin by a cap, which served as a base for my crown. This finished and articulated, I removed the band from the bridge and adjusted it to suit the new crown.

Articulating the two pieces in the mouth, just as they should be, I removed them intact by means of a suitable bridge tray and plaster. After properly investing, I soldered the two parts together. The piece finished, I replaced it in position, a much stronger and more serviceable substitute than it was when first made.

Moral.—Better show a good deal of gold than to give your patient work that cannot stand. Bands, however firm at first, will prove an irritant, and useless in the end.—T. F. DRISKILL, D.D.S., Corsicana, Tex., in *Amer. Dental Weekly.*

SULPHURIC ACID IN MIXING AMALGAM.

While attending the Blue Grass Dental Association, I saw a demonstration of the use of sulphuric acid in mixing amalgam. I have tried it a number of times and have secured good results.

Take a five per cent. solution of the acid and pour it on the amalgam for the filling; wash it thoroughly, then add the mercury, of which I think it requires less, wash it well and squeeze out the excess of mercury. The results will be pleasing.—H. A. SMITH.

WHAT IS A SALT?

The term "salt" was originally applied to the residue obtained by the evaporation of sea-water. It was later applied to designate substances of a similar nature which, like salt from sea-water, were capable of separation into two distinct parts—a basylous and an acidulous radical, and from this idea arose the definition that a salt was a substance obtained by the combination of an acid and a base. The acids and bases, therefore, were not, under this definition, considered to be salts, but placed in a separate category. As the chemical constitution of substances came to be better understood, however, it was seen that there was no essential difference between the constitution, *e. g.*, of hydrochloric acid and potassium chloride, especially when the solidification of hydrogen and the formation of alloys of hydrogen with metals like palladium, furnished evidence of the metallic nature of the element hydrogen. Bases also exhibit, on consideration, the same kind of analogy to salts. For potassium hydroxide may be regarded as composed of the metal potassium combined with the radical hydroxyl. The term salt now includes both bases and acids, and its signification has been rendered much clearer by recent investigations on the condition of matter in solution. These tend to confirm the view that salts may be regarded as binary compounds of the general formula M_xR_y, in which M stands for any electro-positive group or metal, and R for an electro-negative element or acidulous radical. When dissolved in water, substances of this nature undergo more or less dissociation into their ions M R, which carry electrical charges equal in quantity, but of opposite sign.—*Pharmaceutical Journal.*

THE BLUE PENCIL.

The following suggestions are given by Dr. Barrett in the *Dental Practitioner:*—A blue or red aniline pencil is a great convenience to the dentist, in either the laboratory or operating-room. It serves to mark a cast for relief, or for the borders of the plates, the positions of the teeth, etc. But its greatest usefulness is found in articulating and grinding artificial teeth, crowns, fillings, etc. The surface to which a crown or filling is to be adapted is heavily marked with the pencil, and the occlusion then made. The pencil mark is transferred to the exact point to be ground off. It is quite as effective and much more convenient of application than the articulating paper sold for that purpose. Keep an aniline pencil constantly within reach when at your work, and it is surprising how often it will be found useful.—*International.*

GOLD SOLDER.

In making gold solder, pure zinc should always be used, the chemically pure metal prepared for the use of analytical chemists. It is desirable, also, to use for this purpose pure metals only, and especially for bridge-work to strictly adhere to a fixed formula. Toilet-pins, brass, spelter, brass wire, etc., are all of unknown composition. We may know the principal metals of which they are composed, but of the impurities always found in metals, as commercially sold and used, we know and can know but little. When pure metals only are used, gold solder can be made as tough and free from brittleness as good gold plate.—*International.*

BRIDGE-WORK.

The beauty of all artificial work lies in the ability of the artist to conceal his art, and nowhere is this more desirable than in prosthetic dentistry. In bridge-work there are various elements which enter into its proper construction.

Suppose the case requiring the use of an upper cuspid tooth for treatment. To crown the cuspid with gold would be extremely inartistic; to cut it down sufficiently to put on a "window" crown would injure the shape of the tooth, besides showing an unsightly band of gold at the cervical margin. How then shall we secure one end of the bridge to this tooth in the strongest and most artistic manner? Briefly stated, I proceed as follows: Grind the palatin surface of the tooth sufficiently to allow a cap of gold to fit over it; then drill three pits, sufficiently deep to cement in three platinum pins, the size of the pins used in artificial teeth, drilling the pits at a point most distant from the pulp. Burnish a piece of platinum foil over the surface of the tooth that you have ground down; trim it to shape and thrust the platinum pins through the foil into the pits, allowing them to project sufficiently to come away with the foil when removed, which now proceed to do by means of "sticky wax" softened, and pressed over the foil and pins. Invert in plaster and very fine marble dust; when this has set, remove the wax and flow pure gold or 22-k. gold solder over the platinum and pins sufficiently thick to give the necessary strength. With this in position, take impression, make articulating model, back up your teeth, put in place and solder. By this method no gold shows except at the tips of the porcelain teeth, and possibly a gold tip on the cuspid. This method was evolved from the fertile brain of our fellow-member, Dr. C. C. Alexander. I speak of the advantages of this method of construction in bridge-work from personal experience, as I have one in my own mouth, besides having made others to the perfect satisfaction of my patients.—DR. I. N. CARR, Durham, N. C.

PERMANGANATE OF POTASSIUM AS AN ANTIDOTE.

The powerful oxidizing properties of permanganate of potassium have rendered it valuable as an antiseptic and disinfectant, but its properties as an antidote for various poisons are not so generally known. It has been prescribed with success by Bokai and other physicians in the case of phosphorus, which it transforms into orthophosphoric acid. It has been used by Autail for oxalic and hydrocyanic acids and their salts as well as for strychnine and other vegetable alkaloids. Pyle Koemer has employed it in the case of poisoning by opium, and Lacerda for serpent bites and those of venomous insects, spiders, etc. Several years ago the physician Hugoneng showed its action against atropine, aconitine, caffeine, cocainine, etc. In a recent work, an Italian physician, Paratore, has remarked its effect upon the vegetable alkaloids, such as nicotine and aconitine and also upon the vegetable poison, curare. He has studied its action in cases of poisoning by strychnine, comparing it with the usual antidotes, such as tannin and iodine. As a result of his researches he finds that the permanganate is superior to the others, whether employed in direct injection or in cleansing of the stomach.—*Scientific American.*

PAPAIN.

A memoir on the properties and uses of papain is included in a volume just published on "Indigestion," by Dr. G. Herschell. He describes the origin and nature of the ferment, and cites the evidence on which its powerful peptonizing influence was established. As a digestive ferment to be given medicinally, he says papain presents the following advantages over pepsin and pancreatin :

1. It will convert or digest many more times its own weight of meat than they are able to.
2. It can be used when pepsin and pancreatin are contraindicated or powerless.

This latter, as known, is the case when the stomach contents are too concentrated, or insufficiently acid. Under these conditions pepsin is of little or no value, while papain acts energetically. Other advantages of papain are expressed as follows :

3. As regards albuminoids, it combines in itself the joint action of pepsin and pancreatin.
4. It can be given combined with acids, alkalies or antiseptics, as indicated by the demands of the case.
5. It has a local action on the stomach that pepsin has not.
6. It is not so repulsive to the mind as pepsin, as it is purely vegetable.

All these properties being taken into consideration, papain is regarded as being indicated in deficiency of the gastric juice, excess of unhealthy mucus in the stomach, irritable condition of that viscus and duodenal dyspepsia.

The effect of papain is thus twofold, local on the stomach itself, or physiologic, removing unhealthy mucus, stimulating the secretion of gastric juice and relieving pain ; and chemical, in peptonizing the food and assisting the natural ferments in the work of digestion.—*Register*.

Recession of the Gums.

I have found in trying to restore gum tissue, where it was uniformly wasted away around the necks of the teeth, that if we take a tolerably stout silk thread and well wax it, and tie it firmly around the teeth, leaving it there, it will cause a degree of irritation that will have the gum tissue come up and go beyond the ligature, so that by watching it carefully, keeping the mouth clean, we will be able to produce uniformly a pretty good margin of gum and afterward care for it antiseptically after the ligature is taken off, and we will find in some of those "symmetrical wastings" that the necks will be very well covered. In others I have found, by loosening the gum tissue around the surfaces of the root and making transverse cuts in the gums at regular intervals, I could force it down.—Dr. A. W. Harlan.

Saucer-Shaped Cavities.

Speaking of saucer-shaped cavities reminds me of something which I wish to present to-night for the purpose of demonstrating manipulation. You will remember that Dr. Hewett read a paper not many months ago before this society in which he recommended a method for putting in amalgam fillings, and some of you may recall the expression he used, namely, of "burnishing the amalgam into the tubuli." That attracted my attention, and in my own experience I have found so many cavities where I could not get an undercut, that if there is any method that I can adopt which will enable me to anchor a filling there without the undercut, I shall be glad to learn it. I have been practicing the method described by Dr. Hewett and as recommended by him. I am favorably impressed with it. I have here two small pieces of ivory. I took a bur, made a saucer-shaped depression, being particular not to make an undercut, and I filled those with amalgam after the plan recommended by Dr. Hewett. You will find on the side of the ivory a little depression of the same form as these fillings are placed in. If you remove the amalgam you have a test for whatever it is worth regarding manipulation, for I think the value of any filling material depends on manipulation. One dentist can put in a good gold filling, while another cannot do it to save his life. As dentists, we should experiment with the different kinds of filling materials as well as with the cavities.—DR. H. A. CROSS, in *Review.*

SODIUM PEROXIDE, USED DRY.

Apply rubber dam and open canals freely. Roughen a fine iridium broach, dip in sodium peroxide powder and carry into canal dry; make three or more applications in each canal. Effervescence indicates the chemical change consequent on bringing the salt in contact with putrefying matter. This is less violent than kalium natrium and quite as effective. When effervescence ceases wash out with a weak solution sulphuric acid, dry and renew the application of the sodium salt.—H. H. BURCHARD, in *Cosmos.*

AMALGAM FOR CHILDREN'S TEETH.

A very soft amalgam is made of silver 60 and tin 40 parts. This is valuable wherever a very plastic amalgam is desired, as it amalgamates rapidly and sets very quickly, and must, therefore, be used promptly. It will be found valuable for children's teeth and for fissures in any soft teeth. The tin is best turned in delicate shavings in a turning lathe.—WM. H. TRUEMAN, in *International.*

A PLACE FOR COPPER AMALGAM.

I have found copper amalgam useful for covering badly pitted, new erupted first molars. It enters into and takes firm hold of the little crevices, so that the surface may be protected till the tooth is matured.—WM. H. TRUEMAN, in *Cosmos.*

FOR BURNS.

It is said that 1 part of picric acid to 75 of water is a remarkably speedy cure for scalds and burns. Pain ceases immediately on its application.—*Dental Brief.*

THE

Dental Office and Laboratory

FOURTH SERIES

VOL. XIV. PHILADELPHIA, MAY, 1900. NO. 3.

FORTY-FIRST PAPER.

LEADING QUESTIONS AND ANSWERS FOR DENTAL STUDENTS.

BY THEODORE F. CHUPEIN, D. D. S., Philadelphia.

Q. Why should not the tissues recover after the removal of the tartar?

A. The tissues do sometimes, even after the tartar has laid in contact with them for a long time, but after a time they lose their recuperative power to such an extent that they cannot be restored to health.

Q. To what is this due?

A. The long continued irritation, kept up by this deposit, is such that the tissues lose their vitality and seem to be beyond the power of remedial agents.

Q. What is the most important treatment in these cases?

A. The thorough removal of every vestige of calcic deposit, so as to prevent the inflammation which is sure to follow if this is left undisturbed.

Q. Is this all that is necessary?

A. No; the patient should be warned to a most thorough cleanliness, by the constant use of detergent washes, and a soft brush, to prevent subsequent deposits, as also the possibility of the loss of the teeth by looseness if these efforts be neglected, and the deposit be permitted to collect again.

Q. How is a thorough removal of the deposit best effected?

A. After as thorough a removal as may be effected with ordinary scalers, impeded as the operator is by the insinuation of the tongue and the constant flow of blood next the lower front teeth, where the deposit is generally largest, if the lower teeth be covered entirely with the rubber-dam, and this gently but persistently forced on the necks of the teeth, and below any small nodule of tartar remaining, a very thorough removal of every particle of deposit may be effected.

Q. Is this inflammation of the peridental membrane caused by this deposit of tartar, local or systemic?

A. It is purely local, and the dentist who removes the cause, should do this most thoroughly, as well as warn his patient most seriously as to their permitting it to form again.

Q. Is the inflammation due to salivary or serumal tartar?

A. To either; and the smallest particle left on the teeth will continue to keep up the irritation.

Q. How would you proceed in this operation?

A. The large concretions are easiest removed with scalers, using the *pulling motion*, but the smaller portions are better removed by the use of *pushing instruments*. A sharp-pointed gum lancet, used between the teeth, with an upward force or push on the lower teeth, and a downward force or pull on the upper teeth, removes the deposit very effectually from these places.

Q. Is the operation a simple one?

A. On the contrary, it is one requiring the nicest sense of touch and of manipulative ability. Ofttimes the instrument will slide imperceptibly over an adherent nodule, which only the most delicate sense of touch will detect. It is just as important to remove every particle of deposit in this operation as it is to remove every trace of decay from the margin of a cavity before inserting a filling.

Q. Do these cases recover immediately the tartar is removed?

A. Not always, and not unless great care is observed by the patient after the tartar has been removed.

Q. Why is this?

A. Because the tooth being in an excessively loosened condition, a part of the alveolus has melted away, and a part of the peridental membrane has been destroyed, and this favors a new deposition of tartar.

Q. What would you recommend besides scrupulous care and cleanliness?

A. The application of a 10 per cent. solution of chloride of zinc under the free margin of the gums on all the loosened teeth.

Q. How should this be applied?

A. It will not do to apply this remedy on a probe charged with cotton, but it should be done with a hypodermic syringe with a bent needle, insinuating the needle next to the loosened teeth, between these and the alveolus, well under the free margin of the gum. A few drops to each tooth will suffice. The astringent and tonic nature of the remedy will aid much to recovery, provided great cleanliness is observed. Only a soft brush should be used, in order not to lacerate the gums, and this used, not across the teeth, but in a manner that the bristles may pass between the teeth as well as on their surfaces. A wash, composed of a few drops of oil cinnamon and wintergreen, a little alcohol and water, and churned vigorously about the mouth, may also be used with effect; but the main object will be the keeping the teeth absolutely clean, even if the soft brush has to be used a half-dozen times a day. We would likewise call attention to the beneficial effects of glycothymoline (Kress) for such cases. Some of this syringed between tooth and alveolus has a wonderful curative effect.

Q. Do we find always that all the roots of the back teeth are affected?

A. No; sometimes one root will be affected while the other will be perfectly healthy.

Q. What is suggested by this?

A. The amputation of the affected root.

Q. Will you make this clearer?

A. Suppose we find a lower molar tooth excessively decayed on its distal surface, and its distal root so affected as to be almost ready to separate from the crown, besides being diseased, while the mesial part of the crown antagonizes well with teeth of the opposing jaw, the remains of the crown may be cut or ground away with carborundum disks and points, so as to form such a molar crown into a bicuspid, and in this way greatly utilize the remains of such a crown for the patient's benefit. This cutting may be of such proportions as to enable the operator to remove the affected root. We instance a case of a lower molar as being one more readily understood, but the amputation of the palatal root of an upper molar may also be effected.

Q. Is the case thus left?

A. No; after the amputation has been performed, the remaining root or roots are to be treated and filled, and if possible the diseased root extracted.

Q. What do you mean by stomatitis?

A. As the word indicates, from its derivation, it means the inflammation of the mouth; "stoma" from the Greek, meaning "the mouth," and "titis" the suffix, denoting inflammation.

Q. Where do we find this disease?

A. Principally in young children.

Q. What is the treatment?

A. Emollient washes of slippery elm bark in cold water. When the inflammation is very severe, a blood letting, by means of a leech applied to the angle of the jaw. A few doses of bromide of potassium will relieve any nervousness the child may suffer from. A solution of honey and powdered borax is likewise very soothing to the child, which may be applied by means of a swab, or with the end of the forefinger to the irritated parts. In stubborn cases, weak solutions of chloride of zinc, or nitrate of silver, one grain to the ounce of water, have proved efficacious; or the mouth may be sprayed by means of an atomizer, with the following spray:

R. Carbolic acid, ... dr. j.
Oil of gaulthiria, ... dr. ij.
Glycerine, ... dr. ij.
Oil of peppermint, ... dr. iij.
M.

Q. What do you understand by "noma"?

A. It is a sore mouth, of a gangrenous nature, occurring with children.

Q. What are its indications?

A. Little water blisters are formed on the gums, extending sometimes to the mucous membrane of the cheeks. It is much like simple stomatitis. After a few days the pimples present a yellowish head, or they may unite into a larger ulcerative surface and bleed very easily. When the ulceration becomes severe it gives rise to considerable swelling. These ulcers occur sometimes on the edges of the tongue and on its under-surface. It gives rise to an excessive flow of saliva, and when the saliva is profuse the fever, which is usually present with it, abates perceptibly. The bowels of the child are costive when this form of stomatitis exists, but on the excessive flow of saliva they become loose. When first attacked the mouth is hot and the gums and integuments painful, the submaxillary glands quite painful and the breath very offensive, and the child keeps the mouth open all the time.

LIBRARY
COLLEGE OF DENTISTRY
UNIVERSITY OF CALIFORNIA
SAN FRANCISCO.

Q. Is this the only indication of ulcerative stomatitis?

A. No; there are other indications. When two or more ulcers are noticed, they extend over the mucous surface, and appear to be not merely *on* the surface but to sink into or deepen into it. When these indications exist the gums and cheeks of the child become very red, and there is fever, the paroxysms and restlessness being at night and early morning, with great show of weakness. Another indication assumes a softening of the mucous membrane along the medial line of the hard palate; this seems of a pulpy nature.

Q. Is the disease contagious?

A. It is believed to be, and may be given to other children by means of the spoon used for the sick child; it may be circumscribed to the children of the household, or may even become epidemic.

Q. When is simple or ulcerative stomatitis observed?

A. Principally at the period of dentition, when the digestive organs are disordered.

Q. What is thought to be the cause of ulcerative stomatitis?

A. Poor food, uncleanliness, damp localities, dirty surroundings, the large use of mercury, a diathesis tending towards scurvy or cancer, a weak organism, &c., &c.

Q. What is considered to be the best treatment for ulcerative stomatitis?

A. An entire change of residence, and a strict regimen regarding cleanliness, with the use of tonics of iron, with tincture of calumba given with simple syrup, building up the strength with quinine or cod-liver oil, the mouth being swabbed out with equal parts of honey and borax. When the ulcerations are slow in healing, a weak solution of nitrate of silver may be used with borax, and all decayed teeth—should the child be of such advanced age as to have such—which may be a cause of irritation, should be removed.

(To be Continued.)

A LARGE FLASK.

A large flask for vulcanite work, will often be found very useful. This is especially the case when making full lower or partial lower dentures. The models for such cases are often quite weak on account of their "horse shoe" form, and when it is sought to cut them down sufficiently to get them into an ordinary size flask, they are frequently broken, unless such cutting be done with great care. Indeed, a misfortune of this kind often occurs when removing such a model from the articulator, which entails considerable trouble to repair such a break, and even when repaired it is never so certain as before the break occurred, so that a large vulcanizing flask is particularly handy to have for these cases. A flask of this kind will be found in the "*Rochester flask*," which will be found sufficiently large to accommodate unusually large models, as well as sufficiently deep to permit a good body of investment.

T. F. CHUPEIN.

SELECTED ARTICLES.

A CASE OF TETANUS TREATED WITH CARBOLIC ACID.*

By D. FLAVEL WOODS, M.D.,

Physician to the Presbyterian Hospital, Philadelphia.

Having seen many cases of this dreadful nervous disorder treated in many different ways in hospital and private practice, I cite this case and its treatment as the only one I have ever seen recover.

On May 24th I was called to see a boy, aged about twelve years, who had trod, ten days before, on a sharp nail, which penetrated about the middle of the sole or plantar part of the foot to the extent of about half an inch. The foot was poulticed, and at night ham fat was applied. This I learned from the mother of the boy. The lad told me his foot felt quite numb at the time of the accident and gave him considerable pain.

The wound gave rise to little further disturbance, and no doctor was called until several days after the accident. Then the wound was apparently healed.

When I first saw him there was stiffness of the muscles of the neck and spine; he complained of sore throat and swallowed even water with great difficulty. Aside from general lassitude the day before, I learned that these were his first symptoms, and recognizing them as grave, I advised that he be sent to a hospital. To this his parents objected, his mother crying out that "she now knew he had lockjaw, and would prefer that he should die at home."

---

*By permission and consent of D. Appleton & Co., Publishers, 72 Fifth Avenue, New York.

Intense rigidity extended along the neck, back, chest, abdomen and extremities. When attempting to drink, the trismus was increased. The muscular rigidity, which at first was not constant, soon assumed a general character, and his jaws were tightly locked. As the disease advanced the reflex excitability was increased—the slightest touch, the least noise, as the shutting of a door, or a slight current of air was enough to bring on a paroxysm. Perspiration was profuse, increased with each paroxysm of cramp, and the pain also was increased at that time. The expression of the face was indicative of extreme agony, and the function of respiration was seriously involved. The muscles of deglutition were so rigid that it was impossible for him to swallow until the third day. Frothy mucus ran out of his mouth. Dyspnœa and opisthotonus came on with the first spasm and remained until the system relaxed. The temperature was never above 102° F., pulse never above 86. Bowels constipated; urine scanty, high-colored, and with an excess of phosphates. He was sleepless until the third day. Throughout the whole course of the attack his mind was perfectly clear.

Treatment.—The place of injury was freely opened and a dark tarry substance (altered blood) was scraped out. The foot was then soaked in a weak solution of carbolic acid and warm water for about half an hour.

As it was impossible for him to swallow, ten minims of a ten-per-cent. solution of carbolic acid were used hypodermically; fifteen minutes after the first, twenty minims were injected; fifteen minutes after the second, thirty minims were used. Thirty minims were continued throughout the day every half hour with half a grain of cannabis indica; at night the cannabis indica was discontinued, the pupils of his eyes being at this time very contracted. The carbolic-acid solution was administered through the night, according to circumstances. If comparatively quiet, he was not disturbed, but when the interval was prolonged the dose was increased to a drachm hypodermically. There was considerable amelioration in the spasms on the second day, and the solution of carbolic acid was only administered hypodermically every two hours in half-drachm doses of a ten-per-cent. solution. This treatment was kept up until the morning of the third day, when he could swallow. Then a drachm of the solution in glycerine was administered every three hours, until the spasms ceased. After the spasms ceased, a drachm three times a day was given, and gradually diminished to half a drachm three times a day and kept up until all rigidity had left. Up to the third day the patient was nourished through the bowels with milk, eggs, and brandy. On the afternoon of the third day he slept for two hours, seemed refreshed, and said he felt better. From this time on he continued to improve, but the rigidity did not entirely leave him for three weeks after the attack. When he began to relax, his bowels were freely moved, and his kidneys acted profusely. His urine soon after the carbolic acid was administered had the characteristic odor of the drug, and the smoky appearance was manifest on the second day. No perceptible irritation of the kidneys or bladder followed, and no permanent pernicious sequelæ. He was weak and generally debilitated by the attack, but soon recuperated.

He is now to all appearances perfectly well.

From this case I learn that carbolic acid in tetanus is effective only in large and heroic doses. Under these circumstances it is surprising how much the system will bear. I believe that carbolic acid acts as an antitoxine and is much more reliable than any serum which I have seen tried. If given boldly as early as possible, so that the system may be quickly and completely saturated, its antiseptic influence will be manifest on the blood, and I believe there is great hope of this agent becoming a great boon to humanity in the cure of this distressing and alarming malady.

Shortly after the convalescence of this boy I learned through Captain Wolcott, civil engineer of the United States navy at League Island, of a case of tetanus in one of their horses, cured by the use of carbolic acid, on my suggestion of that treatment.

I append the report of the case by Dr. H. B. Cox, veterinary surgeon:

The following is a report of a bay gelding, six years old, owned by the government, stationed at League Island Navy Yard, Philadelphia, Pennsylvania:

My attention was called to the horse, which I saw was suffering from the above-mentioned disease, with all the characteristic symptoms; a few of the most prominent I will describe as follows: The muscles of the head and neck were so rigid that movement of the head to either side was impossible; the nose elevated and poked out; the nostrils dilated; the visible mucous membrane reddened and congested; ears stiff and erect; the membrana nictitans drawn back, almost covering the eye; the jaws almost locked, only able to pry them open about an inch;

the muscles of the croup and back hard and stiff; legs stiff and stood out like four posts; almost impossible to raise the feet far enough to prevent stumbling. The patient also had frequent paroxysms, especially when excited; tail raised erect and stiff; pulse hard and frequent; respiration hurried; temperature high. The cause can be traced to the docking of the tail. The symptoms were so pronounced that recovery seemed impossible.

I finally decided to give the carbolic-acid treatment a fair trial, the result of which has proved very satisfactory.

The following is a daily report of the case: The external treatment consisted of cleansing the wound thoroughly three times daily with a fifteen per cent. solution of carbolic acid. The internal treatment: I prescribed six drachms of a ten-per-cent. solution every three hours, gradually increasing the dose until I reached an ounce and a half of ten-per-cent. solution every three hours, until the stiffness began to disappear. Then I gradually decreased the dose.

I will proceed with the daily condition of the patient.

Date.	Temperature.	Respiration.	Pulse.	Dose.
June 30 . .	103°	30	65	6 drachms.
July 1 . .	102½°	28	64	6 drachms.
July 2 . .	102°	26	...	8 drachms.
July 3 . .	. .	25	62	9 drachms.
July 4 . .	101°	24	60	10 drachms.
July 5 . .	101°	23	58	
July 6 . .	100½°	22	54	11 drachms.
July 7 . .	100½°	22	54	
July 8 . .	. .	...	...	12 drachms.
July 9 . .	. .	21		
July 10 . .	. .	...	52	
July 11 . .	100¼°			
July 12 . .				
July 13 . .				
July 14 . .	. .	...	51 steady.	
July 15 . .				
July 16 . .				
July 17 . .				
July 18 . .	Normal.	20	50	
July 19 . .	Normal.	20	50	
July 20 . .				1½ ounce.
July 21 . .	. .	19	49	

July 22d.—The patient's jaws have unlocked completely and he is able to take his three meals every day; also rests

easily through the night; lies down and gets up without the slightest difficulty—in fact, the horse has fully recovered, with the exception of a slight stiffness due to standing on plank floor, which will leave him in a few days.

I highly recommend this treatment, and am pleased to know we have found something that will overcome the dreaded disease of tetanus.

1501 Spruce street.

The above article, though not strictly a dental article, is of such importance to all that we have obtained the permission of Dr. Woods to republish it in our journal.—Ed.

DENTAL LAWS AND WHAT THEY HAVE ACCOMPLISHED.

Dr. A. W. Sweeny, Washington, D. C.

Read before the Union Meeting at Baltimore, June, 1898.

After all that has been said and written upon the subject of dental legislation, it is certainly both proper and reasonable to ask the question: What has it really accomplished, and to what extent is its influence recognizable in the present status of dentistry?

The most ardent supporters of the dental laws do not hesitate to claim that to the influence of those measures must be directly attributed a very great share of the credit for all the advance and improvement to be noted of late years in dental educational methods and results; but the representatives of the colleges generally will not admit such claims, and insist that dentistry has simply followed the general tendency toward higher education. Most probably the actual truth of the matter is somewhere between the two extremes. Had there been no laws, the teaching would still have continued to improve, in the better class of colleges, at least, since those institutions came into being without any legal stimulus or oversight; but that the existence of such statutes has served to impose some check upon loose methods in the management of dental schools is so probable as to be almost universally conceded. Therefore, to the extent that they have acted as a stimulus to, or imposed some wholesome restraint upon, certain colleges, the dental laws may fairly be said to have accomplished some good results.

Have they been of any further benefit? If we may judge from the claims put forward by many of their most ardent advocates, we must conclude that they have accomplished nothing further of value.

Next comes the very proper inquiry, have they done any harm? To this question, unfortunately, the answer must be that they have. They have most certainly stirred up a vast deal of unrest and ill-feeling in the profession. They have opened the way for the introduction of methods among us which belong more to the realm of politics than to dentistry, and have afforded the opportunity for men utterly lacking in those calm judicial qualities of mind, so essential to all who may be safely intrusted with the management of legal questions, to push themselves into an injurious prominence. Some of their worst features have served as pretexts for the profession of other countries to secure the passage of measures yet more objectionable, under the plea that they are following the example of America's dental legislation. Added to the above, they have signally failed to accomplish that one grand essential feature, which should always be clearly recognizable in all legal enactments, in that they do not fairly disclose themselves as measures designed to foster and promote the general public welfare. It is now some time since the Dental Cosmos pointed out, editorially, that most of the efforts in connection with dental legislation had been expended in attempts to devise something to promote the welfare of dentists, as a class, not the entire community; and it is well known that class legislation cannot be popular. The public, therefore, even the most intelligent among them, do not sympathize with the laws, for they do not look upon them as measures from which they may expect much benefit.

In a recent conversation with a gentleman who is deeply interested in the matter, he said, "It is almost impossible to secure a conviction under our laws, for no matter how clear the evidence, the jury can hardly be induced to convict." Certainly that shows that the public interest and sympathy are not with the law; and in the case of practical questions the public can generally be counted on to be right.

Having conceded the claim that the dental laws have enorced a somewhat higher degree of attainment among the average of the college graduates of recent years, let us consider what benefit, if any, has been derived by the public at large from such increased attainments. In plain terms, how much better service, on an average, are the public receiving now, as a result of our many years' experience in law-making? Far be it from me to insinuate that dentistry has been standing still, or retrograding. On the contrary, it has made great and brilliant advances, and we can feel justly proud to claim brotherhood with those who have written their names high up in the list of the world's great scientists. Even apart from the few great geniuses here and there, there has been some improvement of late years which serves to affect the rank and file. For example, the quite extensive adoption of crown and bridge work has served to bring about a considerable improvement in prosthetic work generally, and it has also served to enforce more honest and thorough methods in the treatment and filling of root canals. It is not so common now, though still a condition much too frequently met with, to find devitalized teeth which have been filled without any attention whatever having been given to the root-canals or their contents. But apart from these examples, when we come to consider the every-day service which takes up so much of every practitioner's time, namely, filling teeth, the question may well be asked, has there been any very general and decided improvement? Do the great mass of the patients who daily apply for that service find that it is being rendered in a better manner in these days, when dentists generally are compelled by law to be better educated than formerly? Frankly, I think not. It is even claimed by some that the average operator to-day is not as good a tooth-filler as was his colleague of some years back, on account of the great increase in the use of plastics having caused many to fall short of the necessary degree of dexterity required to use gold in a really skillful and artistic manner. Of course, there are many really splendid operators to-day, probably more of them than ever before, as the total number of dentists is so much greater. But is the average of ability or professional integrity higher; and if so, to what extent is that improvement due to legislative influences? Certain it is, whatever may be the true average of attainment now, the finest gold-working artists among us would hesitate to claim superiority for their greatest masterpieces over the operations of such a man as the late Dr. Marshall H. Webb, for example.

But while our best men, our geniuses and enthusiasts, are continually leading us on, or striving to lead us on, toward greater scientific knowledge and broader, higher attainments;

while the rank and file of us are plodding along, falling short in many respects, yet, after all, possibly doing nearly as well as should be expected, what about the rear-guard—the stragglers and camp-followers—those who shirk the fight, but are keen to rush in and have a share of the plunder? What of that element in the profession which needs the greatest possible amount of legal supervision, and against which the public stands in the greatest need of protection? Surely that class has flourished and multiplied, and has also grown bolder, more injurious, and more unscrupulous. While the best and highest element in the profession has continued to advance, the lowest element has grown in numbers and descended to lower and more injurious methods; and we have yet to discover that all the laws have served to retard that degeneration one iota. Nowhere in the United States is there any adequate legal restriction placed upon the grossest malpractice. As an illustration, right here in this city a mountebank could not be prevented from extracting teeth by wholesale. Why? Because he was doing it without making any charge, and the same thing was done lately in one of the suburbs by an organized band of mountebanks. How would it have been if some similar aggregation were to have offered to amputate diseased fingers free of charge?

Now, it will not do to dodge the question by saying that people who have no better sense than to patronize such humbugs deserve all they get. We are a recognized profession, and when we apply to our legislatures for laws, it is reasonable to assume that those laws are intended to accomplish something. If, as is usually the case, the plea happens to be "the protection of the public against injurious practices," the public has a right to conclude that after the law goes into effect such practices must cease, and the careless or ignorant will naturally conclude that whatever goes on is all right; while the more intelligent must soon discover that the law leaves them to look out for themselves, while it concerns itself with technicalities among dentists, and, consequently, when called upon to act as jurors, in passing upon the merits of such disputes, their natural tendency is most prone to be against the law, which has failed to afford them any visible benefit.

Can this state of things be improved? Most unquestionably it can. The law should be made more practical, more effective as regards benefit to the public, more popular. It can not say to any man, You shall not do cheap work; you shall not advertise in the newspapers, or on hand bills; but it can say, You shall not commit flagrant malpractice, at any price whatever, or free of charge. It can say, You shall not advertise false statements; you shall not advertise the same thing under different names and at different prices, and you shall not offer secret and dangerous preparations as perfectly safe. As especially appropriate here, I beg to refer all interested to the article entitled, "Secret Remedies," by Dr. Ottolengui, in the April number of Items of Interest. Legislation founded on such lines would soon win for itself the approval of the intelligent portion of the community, and in due time would be generally respected and appreciated. When, under such a law, the attempt should be made to convict some one, not of an offense which, to the mind of the intelligent layman, would appear to be merely a technicality, having about it a very strong suggestion of "red tape," but for direct violation of a provision which is obviously designed for no other purpose than to protect the public from fraud and direct injury, there will be little difficulty about finding a jury which will give the desired verdict.

Before closing, it affords me much pleasure to make an acknowledgment, which, though long deferred, is now made with all the greater freedom because the long delay has been occasioned solely by ignorance.

On more than one occasion I have taken the opportunity to sharply criticise some of the dental laws of other countries, notably that of England, which recognizes no dental degrees save those granted by her own colleges. Once I was in turn criticised by an eminent member of the profession, who said that he disliked to have "bricks thrown at England," because no country on earth was trying so hard to promote and maintain a high standard in dentistry; but, unfortunately, the gentleman was not more explicit. Since then, certain information which I have received compels me to modify my views very decidedly. If correctly informed, I have nothing to retract in regard to the letter of the English law. It simply refuses to recognize any foreign degree, hence, literally, it is narrow, and not in keeping with the true professional spirit, but I have it from high authority that in their practice they are far ahead of us. While they have the legal right to exclude any one from practicing who does not come strictly within the provisions of their laws, I am informed by several gentlemen of unquestioned veracity and ample experience that they have never known of an instance in which the law has been enforced against a foreigner who has shown himself to be an honorable, well-meaning practitioner. It is with the greatest pleasure, therefore, that I now tender this acknowledgment to our colleagues in the mother-country, and wish them Godspeed in their practical efforts to uphold a high professional standard. All the more are they deserving of praise if, while having a law which admits of a very harsh and narrow construction, those who are charged with its enforcement have a sufficiently high conception of the true spirit of professional ethics, a due regard for the actual public welfare, and so large a measure of sound practical common sense as to carefully refrain from a blind and arbitrary adherence to provisions which could readily be rendered most objectionable; and though I cannot consistently hold up the English law as a model for our American Solons to imitate, literally, I can most heartily recommend that many of those gentlemen who seem so constantly consumed with zeal to "examine" everything in the shape of a dentist daring to venture anywhere in their vicinity, and who seem unable to rest comfortably in their beds at night while haunted with the thought that some man, possibly quite as richly endowed with professional skill and integrity as themselves, may be practicing (very creditably, withal) somewhere within their territory, "without having received a certificate in due form of law," that they adopt a few suggestions from our practical, fair-minded English cousins.

CLINICAL STUDIES OF SOME SUPPURATIVE DISEASES OF THE MAXILLÆ.*

HENRY C. BOENNING, M.D., Philadelphia.†

From the point of construction the maxillæ are the most important bones of the face, inasmuch as they form a large part of the osseous framework of this part of the skeleton; but their greatest importance is due, of course, to the fact that they contain the teeth, and to their relations to important organs, such as the eyes, nose and mouth. A number of years ago, when my attention was first directed to the diseases of the maxillary bones, associated with suppuration, notably, alveolar abscess and antral empyema, I observed that while a great number of these cases were being constantly treated at the dispensary, very few of them progressed toward a final successful issue, and still fewer were cured. The suppurative troubles were mostly recurrent, and, though the diseases may have been modified and apparently cured, in a very little while the cases would again appear with a return of the original trouble.

---

*Read before the Academy of Stomatology, December 27th, 1898.

†Professor of Anatomy and Surgery in the Philadelphia Dental College; Quarantine Physician of Pennsylvania; Surgeon to the Garretson Hospital, etc., etc.

It may be proper for me to say that I owe a great debt of gratitude to the Philadelphia School of Anatomy, which I conducted from 1883 to 1896, inclusive, inasmuch as frequent illustrations of the suppurative diseases of the maxillæ presented themselves on the dissecting table, and I never lost an opportunity to examine every cadaver for specimens in morbid anatomy, illustrating alveolar abscess, antral empyema, and other pathological conditions of the maxillæ. I was wonderfully rewarded in my studies on these diseases by finding (especially during the years from 1887 to 1894, while I was most active in this direction), a large number of illustrations in morbid anatomy of alveolar abscess, and quite a series of specimens of antral disease, which I took especial care to study very carefully.

In many of the specimens I secured, and which I still have in my possession, I found that the teeth had received very careful dental treatment, showing in many instances filling material extending well down the pulp-canals. In almost every case of section upon suspected cases of alveolar abscess, and, in many instances, sections of the alveolar structures where no suspicion of alveolar abscess existed, I was rewarded by finding well-formed pus cavities, in some of which the morbid appearances were not only interesting, but instructive to the highest degree.

In specimens of alveolar abscess, where the lesions were marked, there were present, at and near the extremity of the roots of the affected teeth, cavities of greater or less dimensions, filled in some instances with putrid pus, or pus undergoing caseous transformation, with flakes of carious bone, shreds of tissue, inspissated *debris*, and in several instances the apices of the roots were found roughened, eroded—in a word, necrotic. In these appearances, I concluded, lay the reason why, even with careful treatment, alveolar abscess continues indefinitely as a chronic and recurrent disease. The pathological accumulations are retained within the abscess cavity in the substance of the bone, and, although (as was shown by the appearance of the teeth in the sections) careful enlargement of the canals of the roots with the conventional treatment of the disease is practiced, the contents of the abscess cavities are of such character, substance, and size, that it is physically impossible to force them out of the small openings through the roots.

* * * * * * * *

When nature opens an abscess in any part of the body, of course, spontaneously, it results in a prompt cure, if the opening is sufficiently large. It occurred to me that it has been the practice of surgery, when desiring to evacuate an acute abscess, and, in fact, any accumulation of pus (except such as occurs in the development of a cold abscess), to make a free, bold incision right down to the purulent accumulation, and thus at once discharge not only the pus, but the colonies of developing micro-organisms, the infected material and *debris*, any necrotic masses, and everything incidental to the development of a disease of this kind.

I considered, furthermore, that it was the practice of surgery, in the treatment of abscesses associated with the osseous structures, to cut down upon the seat of pus formation within the bone, and then by trephine, or otherwise, make an opening sufficiently large to insure prompt, free, and satisfactory discharge of the contents of such a cavity. I asked myself, why can we not apply the same rule of surgery to the treatment of alveolo-dental abscess? Why shall we temporize with any given case of alveolo-dental abscess, associated probably with a necrotic root, by attempting the discharge of the pus, and other contents of the abscess cavity, by a minute canal drilled through the root of the tooth, with little chance or hope of success, and often with the probability, if not assurance, of recurrence? Although alveolar abscess, in the great majority of cases, is preceded by the death of the pulp, such is not invariably the case, but in these exceptional cases the pulp is by the conventional treatment destroyed, of course.

Following my conviction in this matter, it became my plan to urge a radical treatment of alveolo-dental abscess. Instead of enlarging the pulp-canals, and treating the abscess through them, I practiced opening into the abscess through the external alveolar plate. This operation is so very easily performed that it is readily practiced by every dental surgeon. I have found that the most satisfactory plan to follow is, first, anesthetize the part or patient; next, to antisepticize the parts, and then raise a periosteal flap from the external alveolar plate; the bone being exposed, put a clean bur of sufficient size in the holder of the surgical engine and drill directly into the alveolar abscess, then completely remove its contents; all of the accumulated *debris*, and, if such be the case, the necrotic extremity of the root should be removed. Not that I would ask you to forego treatment through the root-canals whenever alveolar abscess occurs; not at all. In fact, be sure and put the affected tooth in the best possible condition after opening and thoroughly discharging the abscess through the external alveolar plate, but do this first. In alveolo-dental abscess there is not simply a pus formation at the apex of a root and infection of the contiguous structures, but there is at the same time infiltration of pyogenic micro-organisms and their products throughout the entire soft structures in the proximity of the abscess cavity.

Basing my opinion upon experience, I think that the most satisfactory treatment of this affection is an external opening into the abscess cavity by means of a bur from one-eighth to one-quarter of an inch in diameter; next, thorough antisepsis of the abscess cavity; then the proper sterilization of the pulp-canals and the filling of the same; and then packing the abscess cavitywith iodoform gauze or other dressing, leaving the opening through the external alveolar plate lightly covered by the pendent fold, formed by the periosteal flap. This becomes attached, and very soon the wound closes.

* * * * * * * *

Following the thought laid down in the discussion of the treatment of alveolo-dental abscess, it occurred to me years ago that if we desired to cure antral abscess, so called, we must establish an opening sufficiently large to thoroughly evacuate the antral cavity, to clear out the putrid material, to curette the carious walls of the antrum, to remove all diseased structures and all pathological masses, and completely discharge the contents of the antrum, which I have repeatedly found consisted not only of pus, but of *debris* and necrotic substances of a fibrous and osseous nature. The practice sometimes pursued, which, in fact, I regret to say, is very often pursued—to extract a firm tooth, often a sound tooth, and then perforate the floor of the antrum of Highmore—is reprehensible in the extreme. In fact, it is an unjustifiable proceeding to sacrifice a useful dental organ, and in the great majority of cases to no purpose, for in almost every case that I have seen, where this line of treatment has been followed in the attempt to cure a case of antral empyema, the opening was entirely inadequate to discharge the contents of the diseased cavity and to admit of satisfactory after-treatment. It has been our practice in the treatment of suppurative diseases of the antrum, especially where they have been of long standing, to raise the soft structures from the anterior antral wall, and then, by means of a trephine in the surgical engine, make an opening in the antrum large enough to insert the end of the index finger. Some time ago an eminent member of your profession was present at my clinic and witnessed the operation of trephining the antral wall. He expressed himself as being amazed at the practice of opening the antrum, heroically, for antral empyema, but his amazement turned to strong commendation when I took out of that diseased antrum, which had been the subject of treatment for over three years, a nodule of inspissated pus and *debris*, which was quite as large as a small marble; and when I dislodged, by the lightest touch, a flake of bone larger than a finger nail, and demonstrated that this flake of bone was not only necrosed, but black, as the result of long retention, he publicly stated that what he had witnessed had forever changed his views on the treatment of long-continued cases of this kind.

Such facts as these are not as widely known by the dental profession as they should be, but we have established them now in a number of operations, especially within the last three years, and I am to-day prepared to say that it is my belief that the safest and most satisfactory operation for chronic antral abscess is this large anterior opening directly into that cavity, the removal of all pathological masses, the satisfactory irrigation and after-treatment, and, what is invaluable to the patient, no manner of disturbance of the dental arch.

A few suggestions associated with the after-treatment of these cases is of prime importance. In the first place, it is imperatively required to keep the parts antiseptically clean, so as to prevent the accumulation of any discharges or foreign materials. If absolute surgical cleanliness is not observed following this operation, you may have reinfection of the bone and progressive devitalization until a great portion of the maxilla is involved in the process of softening, caries, necrosis and destruction. The antral cavity must be kept carefully packed, and everything done to establish asepsis. In from four to six weeks after the operation the cavity is, as a rule, filled, and, with the extreme care we apply in our after-treatment, I do not recall a single failure to cure antral empyema.

In treating cases of recurrent alveolar disease, as well as cases of chronic antral empyema, we shall continue perforation of the bone into the abscess cavity, thereby insuring the cure of the case and the retention of the dental organs in as perfect a condition as the exigencies of the case will allow.—*International Dental Journal.*

THE SCHOOL DENTIST.

The School Dentists' Society is an association of dental surgeons in England, whose object is to supervise school children's teeth, and see that they are not allowed to decay seriously before receiving proper attention. The *British Medical Journal* remarks that the suggestive statistics it has collected, and that have been recently made public in the address of its president, amply justify its existence. As the result of investigation by the School Committee, appointed by the British Dental Association some years ago, it was announced that the teeth of more than eighty-five per cent. of 10,000 school children of the average age of twelve years needed skilled attention because of premature decay. Similar statistics have been obtained as the result of investigation along other lines.

The School Dentists' Society has been calling parents' attention to these conditions, and seems to be arousing parental consciences in the matter. The *British Medical Journal* says that one, at least, of the large English public schools has taken definite steps toward caring for pupils' teeth. A system has been instituted by which the mouth of every boy is examined at entrance and the actual condition of his teeth charted. A copy of the chart is sent, with a note from the head master, to the parent or guardian, calling attention to pathologic conditions existing, and asking that they be remedied before the boy returns for the next term. The charts are kept up to date by subsequent examinations, and are filed away for ready reference at any time while the boy is at school. Every Saturday (school holiday) throughout the year a dentist is in attendance to treat such cases as parents desire to have dealt with at school.

This system has been in operation for the past five years,

LIBRARY
COLLEGE OF DENTISTRY
UNIVERSITY OF CALIFORNIA
SAN FRANCISCO.

and the masters and parents are eminently pleased with the results. The resident medical man writes emphatically of the good that has accrued to the general health of the children, and the greater attention paid to this matter by parents. Not the least of the benefits obtained has been "the fostering in each pupil of the (often too dormant) principle of personal dental hygiene, with all its attendant and far-reaching advantages."

As the neglect of the teeth in early years often leads to an immense amount of suffering in later life, this English idea of dental interest in school children seems a most commendable one. The entrance to the primæ viæ is important, too, because of its relations to the digestive tract. The application of the best hygienic principles here cannot fail to benefit greatly the general health. Our American dentists are so well known for enterprise, that we are a little surprised to find that they are anticipated by our Anglo-Saxon cousins across the water in a matter like this; we know of no effort that is being made in this direction in this country. The idea of taking care of school children's teeth is an excellent one. It is next in line for attention, now that the importance of the school physician has come to be generally recognized, and the prevention of the insidious development of pathologic conditions during early years is looked upon as the best pledge of a generation of healthy adults and a vigorous old age.—*Medical News.*

THE USE OF TRICHLORACETIC ACID.*

By J. S. Ashbrook, D. D. S.

Derivation.—Trichloracetic acid ($C_2HCl_3O_2$) is prepared by the oxidation of chloral hydrate by means of nitric acid. It consists of colorless, rhombic deliquescent crystals. It belongs to a group of three acids, the other two being the monochloracetic and the dichloracetic acids, and the difference in their composition is due to the proportions of chlorine they contain. They have similar properties.

Dental Uses.—Trichloracetic acid is employed in dental practice as an escharotic in the treatment of pyorrhœa alveolaris, on account of its destructive effect on pus secreting surfaces of the alveoli of teeth, for which purpose a 10 per cent. solution is applied. It is also employed for the removal of vascular tumors of the pulp, and hypertrophy of the margins of the gums and epulis. Dr. Kirk speaks of using this acid in the strong solution of about 90 per cent. for the removal of such growths. Trichloracetic acid has also a solvent effect on calculi upon the roots of teeth, a 10 per cent. solution in water being recommended, and has also been employed on the overhanging and resistant gum of third molars. A 1 per cent. solution has been successfully employed as a mouth wash for its astringent and stimulating action in inflammations and ulcerations. It is also used in combination with pyrozone in the treatment of alveolar pyorrhœa, and in such a solution, as well as alone, its effects have been remarkably satisfactory. Trichloracetic acid may be combined with any suitable alkaline solution, such as soda or magnesia, when it is desirable to limit its action. It has a peculiar power to soften and remove sanguinary deposits, and it acts without injury to the teeth or soft tissues.

---

*Read before the Odontological Society of Western Pennsylvania, December 12, 1899.

Diluted with water to a 3 per cent. solution it is an excellent local astringent and stimulant. Dr. Harlan recommends it for removing the overlying gum for third molars, as it destroys the tissue without hemorrhage or subsequent soreness. Trichloracetic acid is also employed to gain access to roots of abscessed teeth through a fistulous opening, one crystal, followed by more, being placed in the fistula; it is also used for removing hypertrophied gums and gum polypi.

Trichloracetic acid is a stimulant, refrigerant, antiseptic, astringent, alterative and an escharotic.

As a stimulant it is most useful in treatment of receding gums; some claim it will cause the gum to recede. This has not been my experience. I know of one case in particular where the gum had receded fully one-eighth of an inch; after two weeks' treatment the gum was almost in its normal position, and has remained so for eight months. In the treating of gum overhanging lower wisdom teeth it is most valuable, as you know these cases often cause great trouble, becoming so inflamed that the face is swollen, making mastication difficult. Two or three applications of this acid will, in most cases, cure this severe condition, the first application giving instant relief. In this case it acts as a refrigerant, antiseptic, astringent and escharotic.

After the removing of salivary calculus, which collects in such large quantities on the lower anterior teeth, causing them to become very loose in their sockets, one application in most cases will harden the gums and prevent the accumulation of the calculi for a long period.

In the treatment of devitalized pulps it is especially useful as an antiseptic, applied on the end of a broach just before filling permanently. In cases where you have a large apical foramen, you can readily see its value.

In the filling of cavities, where the gum overhangs the cavity, making it difficult to prepare on account of the bleeding, apply a little acid, and proceed without further trouble.

Last, but not least important, is its use in the treatment of a fistula from alveolar abscess. With cotton carefully placed around a Donaldson broach, saturated with the acid, you can reach the bottom, and in most cases, the fistula disappears after two applications.

In all the above cases I use the pure acid, in small quantities. In forty-eight hours all trace of its action has gone, except the good results; the mucous membrane peeling off, as it were, and a new layer formed.

A number of physicians have informed me that they use it, and find it valuable in all the properties I have mentioned.

Trusting that some of you have had as good results as these above-mentioned, I leave the subject with the Society for discussion.—*Dental Brief.*

BOOK NOTICE.

A Pocket Medical Dictionary, giving the pronunciation and definition of the principal words used in medicine and the collateral sciences, including very complete tables of clinical eponymic terms, of the arteries, muscles, nerves, bacteria, bacilli, micrococci, spirilla, and thermometric scales, and a dose-list of drugs and their preparations, in both the English and metric systems of weights and measures. By George M. Gould, A. M., M. D., author of the "Illustrated Medical Dictionary," "The Students' Medical Dictionary"; editor of "The Philadelphia Medical Journal"; president, 1893-1894, American Academy of Medicine. Fourth edition, revised and enlarged—30,000 words. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut St., 1900.

This is, without exception, one of the nicest, most compact, as well as the most voluminous little pocket dictionary or manual which has appeared for a long time. In order to crowd the largest amount of matter into the smallest possible space, the book is printed on the most excellent and thinnest paper, and yet with a clearness of type which gives no trouble to the eyesight. In an incredibly short time it has gone through 3 editions, the 4th edition being accomplished with this. Besides medical words, their definitions and pronunciation, the book contains extensive and valuable tables of doses, poisons, muscles, nerves, weights and measures, abbreviations, &c., &c.

The popularity of Gould's dictionary has been such that the publishers announce their sales as exceeding 100,000 copies.

The book is published at the very modest sum of $1.00, which commends it in price as well as in its other valuable features.—ED.

KENTUCKY STATE DENTAL ASSOCIATION.

The thirtieth annual meeting of the Kentucky State Dental Association will be held at Louisville, beginning May 29th, 1900, at 9 A. M., and continuing three days.

PRELIMINARY ANNOUNCEMENT.

Papers.

1. Some advantages of non-cohesive gold, tin and tin-gold considered from an operative and prophylactic standpoint.—Dr. J. R. Clayton, Shelbyville, Ind.
2. Amalgam. Its preparation, instruments, and instrumentation in filling teeth; illustrated by models.—Dr. W. E. Harper, Chicago, Ill.
3. Oral manifestations of syphilis.—Dr. T. C. Evans, Louisville, Ky.
4. Ex-rays in dentistry.—Dr. L. E. Custer, Dayton, Ohio.
5. Subject to be given.—Dr. S. A. Donaldson, Lexington, Ky.
6. Malerea as a cause of secondary hemorrhage in extraction of teeth.—Dr. J. P. Shaw, Russellville, Ky.
7. Orthodontia. Illustrated by lantern.—Dr. C. DeWitt Lukens, St. Louis, Mo.
8. Orthodontia.—Dr. E. D. Rose, Bowling Green, Ky.
9. One of the more especial duties of the State Dental Association.—Dr. J. L. Sutphin, Greensburg, Ky.
10. Care of deciduous teeth.—Dr. J. F. Meadors, Columbia, Tenn.

11. Subject to be given.—Dr. I. B. Howell, Paducah, Ky.
12. Dental education.—Dr. Theo. Menges, Chicago, Ill.
13. Practical dentistry.—Dr. E. T. Barr, Bowling Green, Ky.
14. Troublesome case in bridge-work via converging teeth, broken facings, mal-acclusion and etc.—Dr. U. D. Hulick, Cincinnati, Ohio.
15. Teeth.—Dr. W. S. Williams, Uniontown.
16. Metallo-plastic work and backing porcelain teeth with gasoline.—Dr. R. C. Brophy, Chicago, Ill.
17. The status of mechanical dentistry; is it to become a lost art?—Dr. O. G. Wilson, Franklin, Ky.
18. Disease of the antrum.—Dr. Adolph O. Pfingst, Louisville, Ky.
19. The reproduction of gum tissue in the inter-proximal space.—Dr. Geo. T. Carpenter, Chicago, Ill.
20. Subject to be given.—Dr. J. H. Baldwin, Louisville, Ky.
21. Subject to be given.—Dr. A. H. Peck, Chicago, Ill.
22. The importance of proper physical diagnosis in the practice of dental surgery.—Dr. J. Y. Crawford, Nashville, Ky.
23. Gold filling vs. gold crowns.—Dr. W. T. McLean, Cincinnati, Ohio.
24. Antiseptics and disinfectants.—Dr. Geo. W. Cook, Chicago, Ill.
25. What efforts are we using to better the profession?—Dr. M. H. Dailey, Paris, Ky.
26. Cast aluminum dental plates.—Dr. Williard Streetman, Cleburne, Texas.

Clinics.

1. Oral surgery.—Dr. H. G. Logan, Chicago, Ill.
2. A method of backing up porcelain crowns.—Dr. E. D. Rose, Bowling Green, Ky.
3. Removal of dental pulp surgically.—Dr. J. Y. Crawford, Nashville, Tenn.
4. Soft gold filling.—Dr. P. A. Pennington, Louisville, Ky.
5. Metallo-plastic work and backing porcelain with gasoline. —Dr. R. C. Brophy, Chicago, Ill.
6. A compound gold filling crown and posterior proximal with matrix. A combination of old and new methods.—Dr. B. Oscar Doyle, Louisville, Ky.
7. Porcelain.—Dr. H. J. Goslee, Chicago, Ill.
8. Immediate nerve extraction with eucaine by pressure and Rott filling.—Dr. S. A. Donaldson, Lexington, Ky.

9. Orthodontia.—Dr. C. DeWitt Lukens, St. Louis, Mo.
10. De Trey's gold.—Dr. C. K. Runyon, Jeffersonville, Ind.
11. Orthodontia and exhibit.—Dr. Frank L. Smith, Chicago, Ill.
12. Contour fillings with soft gold on models.—Dr. G. S. Junkerman, Cincinnati, Ohio.
13. The use of snow face bow in taking a base plate bite.—Dr. J. Q. Byram, Indianapolis, Ind.
14. Subject to be given.—Dr. J. R. Clayton, Shelbyville, Ind.
15. A few cases in orthodontia.—Dr. J. S. McClurdy, Ft. Wayne, Ind.
16. Soft gold filling.—Dr. Henry Pirtle, Louisville, Ky.
17. Subject to be given.—Dr. W. E. Grant, Louisville, Ky.
18. Combination gold filling.—Dr. E. L. Sanders, Louisville, Ky.
19. Open faced crowns.—Dr. B. G. Reese, Louisville, Ky.
20. Extraction of teeth under local anæsthesia.—Dr. F. R. Wilder, Louisville, Ky.

The following gentlemen will give clinics, subjects to be stated:—Dr. G. C. Roberts, Chicago, Ill.; Dr. F. L. Klingman, Louisville, Ky.; Dr. W. W. Barnes, Louisville, Ky.; Dr. A. B. Weaver, Louisville, Ky.

Twelve firms have secured space for displays.

The committee, in addition, have under arrangement other important clinics, and are making strenuous efforts to make this the best meeting ever held in the State, and well worthy of your attendance. Members of the profession are cordially invited.

S. I. GARDNER, D.D.S., Secretary.

No. 213 W. Chestnut Street.

The Fourth Tri-Union meeting of the Virginia State Dental Association, the Maryland State Dental Association, and the District of Columbia Dental Society will be held in Richmond, Va., May 10th, 11th, and 12th, next.

D. M. RUST,
Chairman Committee of Arrangements.

DENTISTS IN THE ARMY.—H. R. 972.

In the House of Representatives, December 5, 1899, Mr. Otey introduced the following bill, which was referred to the Committee on Military Affairs.

A bill to provide for the appointment of dental surgeons for service in the United States Army.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled. That the Surgeon-General of the Army, with the approval of the Secretary of War, be, and he is hereby, authorized to employ and appoint dental surgeons to serve the officers and enlisted men of the regular and volunteer army in the proportion of one dental surgeon to every one thousand of said army. Said dental surgeons shall be employed as contract dental surgeons, under the terms and conditions applicable to army contract surgeons, and shall be graduates of standard medical or dental colleges, trained in the several branches of dentistry, of good moral and professional character, and shall pass a satisfactory professional examination: *Provided*, That three of the number of dental surgeons to be employed shall be first appointed by the Surgeon-General, with the approval of the Secretary of War, with reference to their fitness for assignment, under the direction of the Surgeon-General, to the special service of conducting the examinations and supervising the operations of the others, and for such special service an extra compensation of sixty dollars a month shall be allowed. *Provided, further*, That dental college graduates now employed in the Hospital Corps, who have been detailed for a period of not less than twelve months to render dental service to the army and who are shown by the reports of their superior officers to have rendered such service satisfactorily, may be appointed contract dental surgeons without examination.

A bill for the appointment of dentists to the army was introduced in the last Congress, but failed of passage. The National Dental Association, at its last meeting, appointed a committee who very wisely decided that, in view of the opposition to the project, only the appointment of contract dental surgeons be asked for and not a regularly commissioned dental corps. There is no question of the need of dental surgeons in the army and navy but it is much better to get an entering wedge in this manner than to have the matter again defeated and regulated to the back-ground again for many years as it most surely would be.

Now that the matter is before Congress the members of the dental profession should take a hand and write to the representatives in Congress from their district, securing their support for the measure. Do this at once. In referring to the bill, give the number.

EASE IN ALVEOLAR ABSCESS AND PERIODONTITIS.

Amonol, and Antikamnia tablets, crushed and dissolved in the ¼ of a tumbler of sweetened water, in ten-grain doses, repeated every two hours, affords marked relief in these distressingly painful conditions. T. F. CHUPEIN.

PRACTICAL PLACE.

HYPERTROPHIED GUM.

When hypertrophied gum presents between teeth and overlapping edge of cavity to be filled, ethylate of sodium, applied with a pellet of cotton, will destroy the tissue; melting it into a gelatinous mass. It comes in the form of powder, which, dissolved in alcohol, forms a red, syrupy liquid, exceedingly corrosive.—S. GEORGE ELLIOTT, in *Dental Review.*

MECHANICAL ROOT-CANAL CLEANSING.

Apply rubber-dam; drill used only to open mouth of canals. Soak up liquid contents of canal; flood with 20 vol. solution hydrogen peroxide, and gently rake upward with bristle, avoiding piston action. Bubbles of gas form and bring debris to surface. Dry out, and repeat until gas ceases to come away.—JOHN ACKERY, in *Dental Record.*

BRIDGE ABUTMENTS.

If the tooth which is to serve as abutment is much tipped in position, instead of cutting away, correct the malposition of the tooth, as is done in regulating, bringing it into an upright position, thus avoiding excessive cutting and consequent danger to pulp vitality. The bridge, when inserted, will hold the tooth in position.—S. H. GUILFORD, in *Stomatologist.*

MAKING BABBITT METAL.

To make a small quantity of this alloy, a process different from that of the large manufacturers is required, and is in the resources of any dental laboratory. The following is the formula for Dr. Haskell's alloy: copper, 1 oz.; antimony, 2 oz.; and tin, 8 oz. The usual directions for melting the metals for making this alloy are to fuse the copper first, the antimony, and the tin last. This is not easily done, as copper requires the heat of a blast furnace for complete fusion. To avoid this trouble, the copper, in the form of nails, is placed in a saturated solution of zinc chloride; is taken out and dried previous to being used. The tin is divided into two portions; one portion is put in an iron ladle, placed on a coal fire, and allowed to come to a dull red heat; if fully dry, the copper nails are thrown in and pushed to the bottom of the ladle; they will soon melt; then follow with the antimony and second portion of the tin; stir all together, and, when well mixed, remove from the fire.—WILLIAM R. HALL, D. D. S., in *International Dental Journal.*

TO REMOVE TEETH FROM A RUBBER PLATE WITHOUT DANGER OF CRACKING OR ETCHING THE TEETH.

Boil the plate in glycerine, in a porcelain pan till it smokes, and the teeth will come away clean and free from discoloration. Put them back in the glycerine till cold to anneal them and when cool wash in warm water; they will be as bright as new, and free from grease.

When cold, the glycerine can be bottled for future use. Unlike oil, it is odorless when used hot.—*Ohio Dental Journal.*

THE OIL STONE.

Ordinary glycerine makes an elegant lubricator for the oil stone. It does not dry in and harden as oil does, and is easily cleaned off with water.—*The Dental News.*

SECURING CERTAINTY IN COVERING CERVICAL MARGINS.

Between matrix and tooth place a mat of tin and gold and wedge firmly to place. The portion of the mat which extends into the cavity is then laid against the cervical wall, and forms the first layer of the filling. Also overcomes any danger of checking the margins in applying matrix.—F. W. STEPHAN, in *Dental Review.*

A NEW ALLOY.

A new alloy has recently been patented in Germany, which is intended to take the place of gold. It consists of copper and antimony in the proportion of 100 to 6, the antimony being added to the melted copper. After the antimony has melted, and a union between the two metals has occurred, some charcoal ashes, magnesium and lime are added to the molten mass in the crucible. The alloy can be rolled and worked like gold, and will withstand for some time acid and ammoniacal vapors. It has a color quite similar to gold, which it does not lose by oxidation.—*Brief.*

FORMALIN CATAPHORICALLY.

A left, upper, first molar had been under treatment intermittently for four months. Every attempt to fill roots and seal up cavity, symptoms of previous trouble returned. It was decided to try formaldehyde cataphorically. Rubber-dam adjusted and root-canals thoroughly dried by hot air. A probe electrode was wound with a few threads of cotton, dipped in formalin full strength, inserted in one of the root-canals, and current turned on for five minutes. All the canals treated and tooth filled. Everything quiet since (February to October). Treatment by Dr. Barrows.—Reported by DR. F. W. LOW, in *Dental Cosmos.*

ABNORMAL SPACE BETWEEN THE SUPERIOR CENTRAL INCISORS.

This is frequently due to an abnormal attachment of the *frenum labii*, which will be found to be thickened, with its attachment to the gingivæ, continued through between the incisors. Simply severing this ligament will sometimes be sufficient, but a deep incision with a cautery knife at white heat, splitting the cord, offers the advantages of contraction of tissue. The tissue should of course be anæsthetized before making the incision, carefully avoiding wounding the peridental membrane, operating only upon the abnormal tissue; a cleaning should precede the cautery. The teeth can then be drawn together and mechanically supported for several weeks—or, it may be, months.—E. H. ANGLE, in *Dental Cosmos.*

IF PLASTER ADHERES TO VULCANITE AFTER VULCANIZING.

Put the plates in warm water and add about two drachms hydchlo acid, and in half-an-hour they will be clean and free from odor. When taken out wash in water with a small portion carb. sodium to neutralize acid on tools.—*Ohio Dental Journal.*

PRACTICAL SUGGESTIONS.

Silver Nitrate.—Where the cavities are not in an exposed position, a fifty per cent. solution of silver nitrate may be applied to the cervical border of mesial and distal cavities in molars and bicuspids, and will do much toward preventing decay at that point. By means of a few shreds of cotton on a broach it may be applied without staining any other portions of the tooth. (We do this almost invariably.—ED.)

Cavity Lining.—For lining deep-seated cavities, where it is necessary to leave a portion of partially decayed dentine to avoid exposing the pulp, I combine equal parts of iodoform and zinc oxide and mix with the phosphoric acid. I have never, to my knowledge, had a pulp die under a filling where the cavity was lined in this way.

Broach Holder.—I noticed an article in one of the dental journals recently, which advocated the cutting off of the Donaldson broach in the middle, and affixing a ball of soft solder to the end of it to reach the anterior roots of lower molars and the buccal roots of upper ones. I have been doing practically the same thing for some time, but use sealing wax instead of the solder. It is easier to put it on and gives a better grip to the thumb and finger for rotating.

The Use of Varnish when Setting Crowns.—Gilbert's antiseptic balsam varnish applied to a Logan crown and pin, and also to the stump of the root and root-canal, before setting, greatly assists in the retention of the crown.

Regulating Bands.—To make regulating bands for children's teeth, punch holes in a piece of heavy rubber-dam with the largest hole in the Ainsworth punch, and then trim around the hole the desired width.

A Useful Adjunct in Taking the Bite.—For taking the bite in partial lower plates, a piece of jewelers' soft solder, which comes in small half-round bars, will keep the wax from breaking, and when wax is flowed over this it will be just about the proper thickness for the plate. It is also soft enough so that it can be somewhat bent.—DR. H. B. HINMAN, Bucyrus, O., in *Ohio Journal.*

ANTISEPTIC TREATMENT FOR PUTRID ROOT-CANALS.

M. de Marion's antiseptic treatment of putrid root-canals is as follows:—He opens the pulp chamber as usual and cleans that as well as the canals of all putrid matter. Formaldehyde is then introduced on threads of cotton and evaporated with a heated silver wire. This treatment is repeated two or three times at same sitting. A temporary dressing is now made of cotton shreds saturated with formaldehyde and geranium and the cavity is closed air-tight, with wax or gutta-percha. Two or three days afterwards the same treatment is repeated. The essence of geranium serves to find out any putrid matter; left in contact with the same, it changes its mild and agreeable smell, and only when the latter is pure, a permanent filling can be inserted.—F. A. B., in *Detroit Weekly*.

FORMALDEHYDE IN SOLID FORM.

As you have considered formaldehyde of sufficient interest to dentists to publish a long article from one of the medical magazines, you may possibly find room for a short note on one of its dental applications. If we make a very strong aqueous solution of this gas, part of it slowly assumes the solid form and is precipitated. When this is dried and the pulp-chamber in a tooth filled with it, after a time it is all reconverted into a gas and thoroughly disinfects the whole tooth. If there is any abscess at the root, by sealing in the solid formaldehyde with cement most of the gas escapes through the abscess, which soon yields to the treatment, which should be renewed every three days as long as required. An extended use has shown me the value of this treatment.—WILLIAM ROLLINS, D. D. S., Boston, in *International Dental Journal*, Jan., 1898.

IVY POISONING.

In ivy poisoning bathe the parts with hyposulfide of sodium. —*Dental Brief.*

MOUTH-WASH FOR FETID BREATH.

℞.—Tinct. myrrhe, ...	ij dr.
Kennedy's dark pinus—Canadensis,	i dr.
Sodii borates, ...	xij grs.
Listerin (Lambert's), ...	iij dr.
Aque dist., ...	ij oz.

Use as mouth-wash three times daily.—*Med. Brief.*

THE

Dental Office and Laboratory

FOURTH SERIES

Vol. XIV. PHILADELPHIA, JULY, 1900. No. 4.

MY METHOD OF ADJUSTING THE RUBBER DAM.

By Theodore F. Chupein, D. D. S., Philadelphia, Pa.

We read with considerable interest, as well as amusement, the article by Dr. Wedelstaedt on "A few words in regard to the adjustment of the rubber dam," published in the *Pacific Dental Gazette* for January, 1900, wherein he relates his observations, how different men proceeded in the adjustment of this invaluable aid to dental operations, at a clinic which he attended, as well as his own method of procedure.

We regard it a good practical suggestion that he makes, "that ten men be invited to write papers on this subject," for, as we all cannot attend clinics, or visit each other's office, to pick up different *tricks*, *ideas* or *suggestions*, to see and learn how men work.

Frequently when attending clinics many are excluded from a view of the operations going on, so that, to the many, little can be learned; hence, if each man would set down his manner of doing things *clearly* and *explicitly*, much good would result.

First of all then, when about to apply the dam, see that the teeth over which it is to be adjusted *are clean*, that is, free from tartar and other accumulations. The hard tartar we scale off, the softer accumulations, which are ordinarily very slippery and cling to the necks of the teeth, we remove with polishing brush wheels, or white pine sticks charged with powdered pumice stone and water.

Our next effort is to pass a string through the proximate surfaces, down to the interdental space, between each tooth we propose to cover with the dam, and we may say here we favor the covering of at least five or six teeth, although, perhaps, only one proximate cavity is to be filled, for reason that *more room*, *a better view*, *a freer approach*, and *a more untrammeled access* to the case requiring attention, is thus obtained.

Regarding the passing of the string through the proximate spaces, we would say this: The string should be *well waxed*, and should pass through these spaces without too much effort. If in passing the string through these spaces *it is cut or frayed*, it points to a decay, a sharp or a roughened surface. In this case we pass the very thinnest "flexo sep file" between these teeth, passing the points of contact until it reaches the interdental space. It stands to reason that if we attempt to force the septum of rubber between the holes on teeth so closely wedged together, or which cut or fray the string, we may expect that the same cause will cut the dam, so that we should not be astonished if a leak occurs when done without this precaution, even after the dam *seems* properly adjusted. Therefore, get all things in shape and properly arranged before beginning the adjustment. Don't hurry!

Sometimes it will be found quite troublesome, unless one has an assistant, to start the adjustment. We sometimes apply the dam, in troublesome cases, by passing a clamp through one of the holes in the dam and put the clamp on the tooth. The hole punched in the dam should be of a size sufficient to warrant the stretching of the dam beneath the jaws of the clamp without the danger of tearing it. The jaws of the clamp being passed through the hole, as shown by Fig. 1, the dam forceps are passed through the bow of the clamp, and the excess of dam gathered neatly around the handles of the dam forceps, so as not to intercept the view. In this way the clamp may be applied to the tooth with no difficulty whatever.

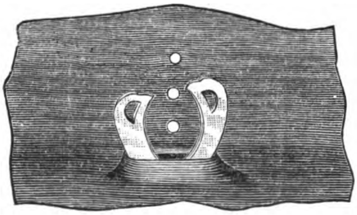

FIG. 1.

This gives us a starting point, when by stretching the dam beneath the jaws of the clamp the rubber holds to the neck of the tooth, and one by one, by passing the ligatures between the proximate spaces, we get all the teeth covered nicely, with no folding or wrinkling of the dam, as we wish them to be. The clamp may now be lifted off, and this tooth ligated also. In cases, however, where we are fearful that the dam may slip off during the operation, either from the *shortness of the tooth* or its *conical form*, we let the clamp stay on during the entire operation.

As to ligatures, we have for many years abandoned silk. "Gilling thread," 2 fold, 40, is very strong and very smooth, and will pass through any proximate space as readily as waxed silk. A ball of this may be obtained from dealers in linen twines and threads, for seventy-five cents, which will last a dentist almost a life-time.

After waxing this, we cut a piece about fifteen inches long, double it and tie a large knot *at the looped part* of the ligature.

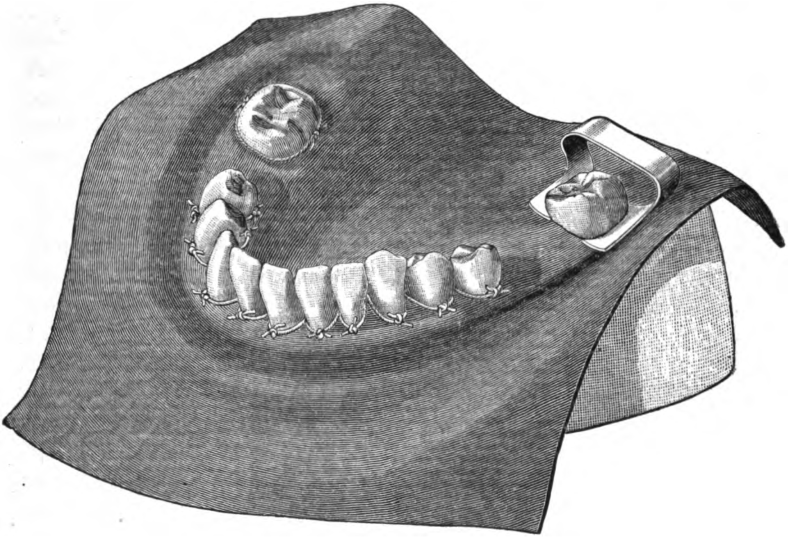

FIG. 2.

We pass this ligature through the proximate spaces, permitting the knot to lie on the palatal or lingual surface of the tooth, seeing that the dam is carried well on to the neck of each tooth, and tying the tooth with a surgeon's knot on the *labial side.* The knots alluded to, lying on the lingual or palatal side of the teeth, are shown in Fig. 2, at the bicuspids and molar, and the surgeon's knot in Fig. 3, on the labial side of all the teeth.

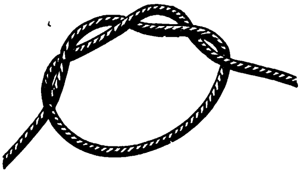

FIG. 3.

Before making the second tie, after the surgeon's knot is brought up to the tooth on its labial aspect, we hold the ends of the ligature with the fingers of the left hand, and with an appropriate instrument in the right hand, we press on the knot on the palatal or lingual side of the tooth, and in this way force the dam well up on the neck of the tooth. It will be found, sometimes, that all effort to do this fails, and the dam refuses to go before the ligature. Looking for the reason of this we find that we have tied the dam to the tooth, instead of tying the ligature to the tooth above the dam. Leave this alone for the time, and ligate the remainder of the teeth in the way described.

When they are all ligated, return to the intractable one. Remove the ligature and apply a new one, seeing that this one lies above the dam, and by a gentle push the dam is carried well on the neck of the tooth. When it is thought expedient to remove the clamp which we had applied to aid us in the adjustment of the dam, the tooth should be ligated in the same way as the others; to do this, before removing the clamp, the ligature should be passed beneath the jaws of the clamp and ligated, as illustrated by Fig. 4.

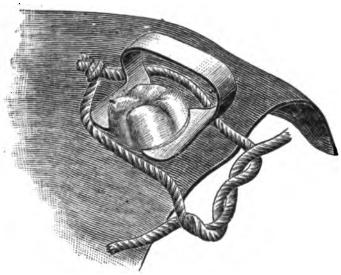

FIG. 4.

In those places where we do not intend to work, we pack small pellets of cotton floss, or Japanese bibulous paper, into the interdental spaces, and by such an adaptation of the dam we feel secure against leakage, and we work as untrammeled as possible.

The applying of the ligatures often gives considerable pain, but we have found almost a total immunity from this in the following procedure. The day before we propose to operate, we pass a ligature once or twice around each tooth we propose to cover with the dam, pressing these ligatures well up on the necks of the teeth. We do not cut these ligatures short off close to the teeth, but leave them long. When they are all ligated we take the ends and tie them together. We use this precaution because the ligatures, if not secured in this way, might *work up* on the root of the tooth, and not only cause considerable pain, but considerable inflammation, and the patient considerable pain before they are fished out. With this precaution there will be no danger of such sequences.

These ligatures leave the gum in a flabby state at the necks of the teeth, whereby the dam may be painlessly adjusted at these important points.

If the case be one where the operator cannot wait, the bathing of the gums around the necks of the teeth with a strong solution of hydrochlorate of cocaine will, in a great measure, mitigate the pain of the application of the dam at these points, but we much prefer to ligate the tooth, as described, a day or two before.

Another great advantage of covering several teeth with the dam is that medicaments may be applied to the very sensitive cavity, and while these obtundents are having their effect on the dentine, the attention of the dentist may be given to some other cavity, perhaps not so sensitive, and in this way the time of neither the dentist nor patient is wasted.

Regarding the use of the clamp we would say that we use them often as aids in the application of the dam, as already referred to and described, yet there are cases that we cannot get on without them. For instance, when a tooth is *very short or very little developed* above the gum margin, or when a tooth is so conical in shape that a ligature cannot be effectively applied, or in cases where decay occurs on the *lingual surface* of a lower molar, it is almost impossible in such cases to do without a clamp.

In filling cervical cavities, an endless variety of clamps to enable the operator to approach these places and to exclude moisture has been devised and offered the profession. The best device of this kind which we have found, and we have tried a great many, is "Hatch's Universal Cervical Clamp" (Fig. 5).

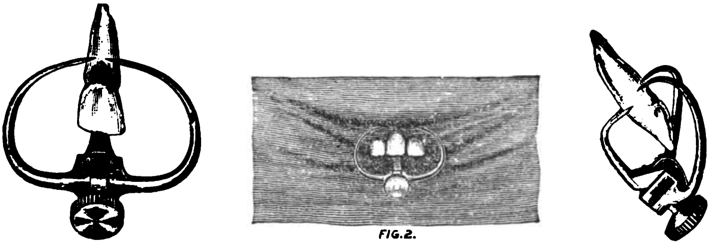

FIG.2.

FIG. 5.

The dam being applied, it is stretched away so as to expose the decayed cavity. The forked part of the clamp is applied to the palatal part of the tooth, and by means of the little thumb screw the outer points are forced on the labial part above the margin of the cavity. The wide latitude given by the outer arms of this clamp affords the operator an abundance of room to work, even should these cervical decayed places extend mesially or distally. It looks like a barbarous instrument, but we have never had a patient complain, in the slightest way, when it was applied.

An idea was also suggested by Dr. Brockway for the tackling of such (cervical) cavities, which is illustrated by Figs. 6 and 7. A needle was held in a pair of flat nose pliers, about a quarter of an inch from its point, and above this, towards the eye, the needle was heated red hot. This treatment permitted the needle to be bent, as shown by Fig. 6, when a little gum shellac was placed on the eye of the needle, forming a minute ball. The dam being applied, it was stretched away from the cavity, and the tempered points of the needle forced into the cementum of the root, and the excess of the dam pulled in such a way as to hook itself over the little shellac ball, as shown by Fig. 7.

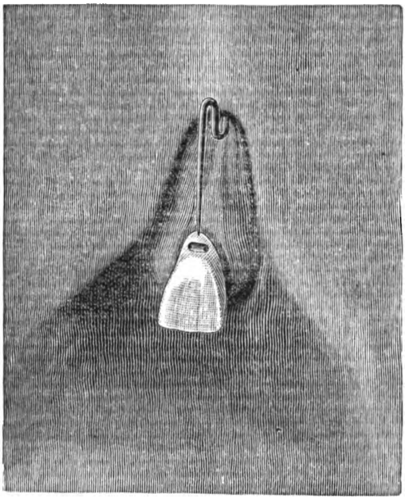
FIG. 7.

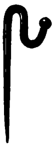
FIG. 6.

Still another suggestion has been made for these cases, in the use of binding wire. A piece of small copper binding wire, No. 26, about 4 inches long, is doubled in half. The looped end is twisted, as shown by Fig. 8, and the free ends passed through at the neck of the tooth, permitting the twisted part to lie against the palatal part of the tooth. The free ends are now seized with a pair of flat nose pliers and twisted on the labial side of the tooth above the cervical cavity, as shown by Fig. 9. This is done

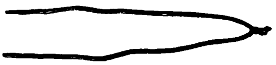
FIG. 8.

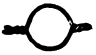
FIG. 9.

LIBRARY
COLLEGE OF DENTISTRY
UNIVERSITY OF CALIFORNIA
SAN FRANCISCO.

before the dam is applied. When applied it may be stretched away and carried over the parts of the wire that were twisted, for the purpose of holding the dam out of the way, as well as to expose the margins of the cavity. Should a proximate decay occur, and this plan used, it will be possible to push the wire up slightly on this surface, giving a good view of the cervical margin. Besides adjusting the dam properly, it is advisable that it should lie smoothly over the patient's face. For this purpose there are several rubber dam holders on the market, which accomplish this very satisfactorily.

We are indebted to the "Chase Combination Dental Plate Co." for the use of cut 5 in this paper.—ED.

IODINE IN FISH.

Some recent tests have brought to light the fact that iodine occurs in certain articles of human food in small quantities, and as it occurs in fish and shellfish, it has recently been suggested that this fact may be the reason why fish is so valuable a food for invalids. Traces of iodine have been found in cod-liver oil, and it is possible that it, together with the bromine and phosphorus, contributes to its tonic effects.

It is a known fact that nothing is so beneficial to teething children as the salt sea air. Indeed we believe that iodine exists in this in inappreciable quantities, so that it is this which exerts the antiphlogistic action in improving the health and giving strength to the emaciated infant suffering from the inflammation incident to this condition. We know of a case of the kind where the infant was so reduced in flesh and health that life hung by a thread. All that medicine could do was done. The child was so thin—merely skin and bones—that to hold it in the arms gave pain. It was placed on a down pillow and the nurse took it to Sullivan's Island, a seaside resort about six miles from Charleston, S. C., washed by the Atlantic. The parents expected the nurse to bring the child back dead, as nothing more could be done. Yet despite its extreme illness, and with no other treatment than breathing the salt air, day by day a slight improvement could be perceived until it grew hearty and strong again. This only confirms my idea of the curative effects of iodine in salt sea air.

As regards its presence in fish and shellfish, cod-liver oil, etc., we will say that we had a cousin in Charleston very much in the same condition as the case above related. The child's death was hourly expected. At the South the fishermen bring shrimps to your door on Sullivan's Island, and sell these shellfish at so much a measure. Whether it was instinct or what, when the child saw these shrimps, she stretched out one of her little hands and took one of the raw shrimps, and sucked it voraciously. She was in such a condition that the parents let her do whatever she wished, expecting her to die at any moment. A raw shrimp is most nauseous, yet the child seemed to like it. Strange to relate, almost immediately after sucking the raw shrimp, an improvement was noticed in the child, and as many more as she cared to have were given her. We believe this, with the salt sea air of this seaside resort, contributed to her cure.—Ed.

RECEPTION COMMITTEE APPOINTED BY THE MANAGEMENT OF THE INTERNATIONAL DENTAL CONGRESS AT PARIS.

The following named gentlemen constitute a Reception Committee for looking after the welfare of residents of the United States attending the Dental Congress :

Dr. Du Bonchet, President, 8 Boulevard des Capucines.

Dr. Ronssell, Secretary, 74 Boulevard Haussmann.

Drs. Barrett, Bogue, Crane, Daball, I. B. Davenport, W. Davenport, Fay, Gires, Hotz, Lie, Levett, Meng, Georges Ryan, Jean Ryan, J. H. Spaulding and Silvia.

INTERNATIONAL DENTAL CONGRESS, PARIS, FRANCE.

August 8th to 14th, 1900.

The following papers will be read at Paris by the undermentioned gentlemen :

A. K. Fort, D. D. S., Atlanta, Ga.—"The influence of the saliva on bacterial growth in the mouth."

W. A. Price, D. D. S., Cleveland, Ohio.—"The science of dental radiography." (Illustrated.)

Richard Grady, M. D., D. D. S., Baltimore, Md.—"Instructing our patients in the care of the mouth and teeth."

R. R. Andrews, A. M., D. D. S., Cambridge, Mass.—"The development of the enamel."

Geo. W. Cook, D. D. S., Chicago, Ill.—"A bacteriological study of pyorrhea alveolaris."

C. S. Case, D. D. S., M. D., Chicago, Ill.—"Important principles in dento-facial orthopedia."

R. H. Hofheinz, D. D. S., Rochester, N. Y.—"Our preliminary educational deficiencies."

E. H. Angle, M. D., D. D. S., St. Louis, Mo.—"The American type of dento-facial deformity."

J. E. Hinkins, D. D. S., Chicago, Ill.—"The chemical action of cements in the mouth."

I. N. Broomell, D. D. S., Philadelphia, Pa.—"The source of nutrition of the dental pulp."

T. W. Brophy, M. D., D. D. S., LL. D., Chicago, Ill.—"Surgical treatment of palatal defects."

W. C. Barrett, M. D., D. D. S., Buffalo, N. Y.—"International dental ethics."

B. Holly Smith, M. D., D. D. S., Baltimore, Md.—"Will open the discussion on education."

Jonathan Taft, A. M., M. D., D. D. S., Cincinnati, Ohio.—"Dental history."

A. W. Harlan, A. M., M. D., D. D. S., Chicago, Ill.—"Pulp digestion."

E. R. Warner, M. D., D. D. S., Denver, Colo.—"Some phases of mummification."

The following gentlemen will give Clinics:

CLINICS.

W. V. B. Ames, D. D. S., Chicago, Ill.—"Some possibilities of new process oxyphosphate of copper."

Gordon White, D. D. S., Nashville, Tenn.—"A compound filling, using in the cavity tin, Abbey's non-cohesive gold, and Nickold's cohesive gold."

Joseph Head, M. D., D. D. S., Philadelphia, Pa.—"Porcelain inlays."

Alfred Owre, M. D., D. M. D., Minneapolis, Minn.—"Will prepare a step cavity in an incisor or bicuspid, and fill same with DeTrey's crystal mat. gold." (Solila.)

Joseph W. Wassall, M. D., D. D. S., Chicago, Ill.—"The treatment of septic pulpless teeth."

Hart J. Goslee, D. D. S., Chicago, Ill.—"Porcelain crowns and bridge-work."

Robert Good, D. D. S., Chicago, Ill.—"Porcelain bridgework."

V. H. Jackson, M. D., D. D. S., New York.—"Jackson's system of constructing appliances for the correction of irregularities of the teeth."

Levitt E. Custer, D. D. S., Dayton, Ohio.—"The electric oven and electric gold annealer."

W. E. Griswold, D. D. S., Denver, Colo.—"A removable crown for the support of saddle plates or bridges."

E. K. Wedelstaedt, D. D. S., St. Paul, Minn.—"Gold filling."—Mesio-occlusial cavity in upper first molar demonstrating Dr. G. V. Black's method of—

1st, Cavity preparation; 2nd, Extension for prevention; 3rd, Occlusal anchorage; 4th, The use of annealed and unannealed gold; 5th, Method of finishing (using the black saw and finishing files); 6th, Proper contact; also 7th, The scientific application of the rubber dam; and 8th, The Wedelstaedt system of measurement, and its application to cavities in the human teeth.

Frank Holland, M. D., D. D. S., Atlanta, Ga.—"Cohesive gold fillings."

T. W. Brophy, M. D., D. D. S., LL. D., Chicago, Ill.—"Surgical treatment of congenital cleft palate."

NEW JERSEY STATE DENTAL SOCIETY.

DENTAL OFFICE AND LABORATORY.

Dear Sir:—The Thirtieth Annual Meeting of the New Jersey State Dental Society will be held at the "Auditorium," Asbury Park, N. J., commencing 10 A. M., Wednesday, July the 18th, and continuing on the 19th and 20th.

Five excellent papers by well known dentists have been secured, and, as usual, the features of the clinic on oral work, prosthetic dentistry, electrical porcelain work, gold crowns, bridges and allied subjects, will be interesting to instruct and please all members and visitors.

The exhibits in the large hall of the Auditorium will be the greatest and most comprehensive ever before attempted by the society.

The clinics will be under the personal supervision of Dr. Frank L. Hindle, of New Brunswick, and aids. The exhibits will be under Dr. F. Edsall Riley, of Newark, and aids.

The headquarters will be the Hotel Columbia, adjoining the Auditorium, with rates of $2.50 and $3.00 per day.

The profession generally are invited to participate.

CHARLES A. MEEKER, D.D.S., Secretary.
HERBERT S. SUTPHEN, D.D.S., Assistant.

BOOK NOTICE.

ANÆSTHETICS, THEIR USES AND ADMINISTRATION. By Dudley Wilmot Buxton, M. D., B. S., member of the Royal College of Physicians, ex-President of the Society of Anæsthetics, etc. Third edition. London: H. R. Lewis. Philadelphia: P. Blakiston's Son & Co., 1900.

The above volume is before us for review. It details the "historical," preparation of the patient before administering the anæsthetic; the choice of the anæsthetic, etc. Also the use and preparation of nitrous oxide gas, alone or in combination with oxygen, etc.

The volume is not an exhaustive treatise, but touches lightly on the various and most popular anæsthetics in use.

The chapter on the history of anæsthetics is fairly well detailed, but there is a lack of information relative to "local anæsthetics." The author states that this condition has only met with partial success. We here take issue with him, as it is known that "local anæsthesia" has met with considerable success, and is practiced to a considerable extent to the benefit of the patients who refrain from general anæsthesia on account of fear or other reasons.

While the book is written in clear, explicit language, we find at times a disposition to pedantry. Thus, at page 148, when speaking of ether collapse, he says, "is best treated by the feet raised position, heat applied over the body, and *a sinapism on the precordium.*" Why not have carved out the language of the first part of his proposed treatment and concluded the paragraph by saying a mustard plaster over the region of the heart?

The book is published at the reasonable price of $1.50, and contains many valuable suggestions.—ED.

THE TRANSACTIONS OF THE NATIONAL DENTAL ASSOCIATION for 1899, to which is added, under the same cover, the transactions of its Southern Branch, form a somewhat ponderous tome of about seven hundred and twenty-five pages. It bears the imprint of the S. S. White Dental Manufacturing Company, and its mechanical make-up, the paper, printing, and binding, are, in all respects, quite satisfactory.

The Third Annual Session of the National Dental Association, of which this is the record, was held at Niagara Falls, N. Y., commencing August 1st, 1899. A special effort was made to make this meeting interesting and attractive, so as to arouse interest in the new National Association. The effort was undoubtedly a success in so far as the attendance, and the number of papers presented may be considered an index. Twenty-seven papers are recorded in the volume under review, a much larger number than could be properly considered during the time that the Association was in session. Some of them are far from the standard the National Association should exact, being more suited to the needs of the junior class in a dental college; and others, while possessing merit, were merely records of incomplete experiments, and should have been confined to the section to which they properly belong. Take, for instance, Dr. Wedelstaedt's paper, merely a report of progress in an important investigation on which he has spent large of time, energy and cash: it would have been a kindly and helpful act if the section had, on receiving his paper, corrected his misapprehensions, and with encouraging suggestions referred it back to him, that at a later meeting he might have completed his experiments and reported a paper possessing real and lasting value. As it was, he was permitted to present a paper, unfortunately worded, claiming as a discovery the permeability of the zinc cements to moisture, and as something new exhibited specimens showing penetration of staining solutions. Surely, someone on Section III, Operative Dentistry, must have known that the permeability of zinc cements to moisture was ancient history. It was, indeed, discovered immediately on their introduction, (See *Dental News Letter*, Vol. XII., July, 1859, page 253; *Dental Cosmos*, Vol. I., July, 1860, page 637) and has been time and again demonstrated and referred to. The experiments accompanying the paper were common enough more than a generation ago. What are the sections for, if not to revise and prepare for presentation to the Association matters brought before them? Men able and willing to do such work as that on which Dr. Wedelstaedt has been engaged are far too few. If the intricate machinery of the National Association fails to be helpful in conserving their energy by directing it from long dead to live issues, what is the use of it? We may note here an interesting point. It is universally conceded that the zinc cements, so long as they remain in position, are perfect tooth preservers. In the volume before me, this is repeatedly averred; yet they are not moisture tight, they never have been. Is absolute exclusion of moisture an essential quality in a filling? Is a filling merely a mechanical stopper, or is it something more? A careful reading of the discussions leaves that point unsettled. However, the question was not directly at issue.

National Association matters end at page 485. Reluctantly, compelled by limited space, I forego even naming the valuable, well-written papers which give weight to the volume: records of original investigation; embodiments of well-matured experiences; and observations of passing events, which gave tone to the session, and added dignity to our profession.

The proceedings of the Southern Branch cover 240 pages. They are occupied, for the most part, by short papers, generally well prepared, upon subjects of current interest, and related to every day practice. We note an error on page 83: in a review of Operative Dentistry, Dr. Fife credits a paper upon Pulp Mummification to Dr. J. A. Woods; it should be Dr. J. A. Wass. Considerable space is given to the subject of employing dentists in the Army and Navy. While the importance of dental service in the Army and Navy is generally recognized, it has been found to be a very difficult task to find for the dentist a position in either that a self-respecting dentist would willingly fill, acceptable to the powers that be, and in harmony with the nicely-graded distinctions of rank and precedence so firmly wedded to shoulder straps and epaulets.

Our Southern friends have energetically attacked the problem in a way that should finally ensure them the success they deserve. The last paper, "Dentistry of the Past and Present," by Dr. James S. Knapp, is open to criticism. It is rambling, inaccurate, and marred by carelessness as to dates that may, in some cases, lie between the writer and the printer. Horace Hayden, we are told, "commenced practice in 1840"; it should be 1804. He brings Robert Woofendale to New York in 1776; it should be 1766: he returned to England in 1768, not 1778. He tells us that General Washington was much troubled with the teeth made for him by John Greenwood; the General, however, is on record that those teeth were very satisfactory; it was "the other fellow's teeth" that he so bitterly complained of; and we beg leave to submit that the General himself is better authority than "the son of a man who knew him well." Such reminiscences, if carefully written, are valuable. So carelessly put together as this is, they are stumbling blocks. Truth and error are so intermingled that a careful student does well to ignore the whole mess.

The National Association has about four hundred members; of these eight have rounded out a half century of active practice. The Southern Branch numbers about one hundred and twenty; of these twenty are original charter members.

After reading the book through, noting the large amount of valuable matter it contains, I cannot but regret that, by the method of its distribution, it necessarily will have a limited circulation; and furthermore, the excessive delay in its publication makes it, when it finally reaches those for whom it was prepared, very like last year's almanac.—W. H. T.

COMMENCEMENT EXERCISES OF NORTHWESTERN UNIVERSITY DENTAL SCHOOL.

CENTRAL MUSIC HALL, WEDNESDAY AFTERNOON, MAY 2, 1900,
AT 2.30 O'CLOCK.

CHICAGO.

PROGRAMME.

Greene Verdiman Black, M. D., D. D. S., Sc. D., LL. D., Dean.

1.	Overture,	Orchestra
2.	Invocation,	A. R. Edwards
3.	March,	Sousa
4.	Salutatory Address,	Albert B. Potter
5.	Selection,	Orchestra
6.	Annual Report and Mandamus,	Theo. Menges, B.S., D.D.S., Sec'y Faculty
7.	Selection,	Sousa
8.	Conferring Degrees,	Henry Wade Rogers, LL.D., Pres. of University
9.	Popular Airs,	Orchestra
10.	Doctorate Address,	Dr. J. Taft

11. Selection, ... Verdi
12. Valedictory Address, ... Charles A. Peak, D.D.S.
13. Selection, ... Orchestra

CEREMONIAL COMMITTEE.

Daniel Costello. Percy Benjamin De Witt Idler.
Waldo Paschal Johnson.

SELECTED ARTICLES.

ROOT-CANAL TREATMENT.

JOHN R. CALLAHAN, D. D. S., Cincinnati, Ohio.

During the last two or three years I have received letters from dentists residing in all parts of the country, asking for the details of my method of treating root-canals. * * * The first step in the treatment of any root is to gain direct access to the canal, by a funnel-shaped aperture, so that a broach may be passed into the root with absolute certainty, in the dark, even. Direct access must be gained even at the cost of the sacrifice of considerable crown tissue. The root is of greater value to me than the crown. When a full, free and direct opening to the root has been obtained, the disintegrated pulp tissue and pus must be removed, if present. This should be done by the most careful and painstaking instrumentation. If pus is present, hydrogen dioxide may be used. If the canal is filled with moisture, the greatest care should be exercised not to use a broach, paper cone or any other substance in such a manner as to force the contents of the canal through the apical foramen. In order to satisfy yourselves how easily this latter mistake may be made, I advise every dentist to take a disassociated tooth with an open canal, fill the canal with water colored with eosin, or other matter that will render its presence on the outside of the root easily detected, and then endeavor to use a broach or pledget of cotton in the canal. Only the most delicate instrumentation will prevent the contents of the canal being forced through the foramen.

After the canal has been reasonably well freed from pus, disorganized pulp tissue, and putrefactive matter, by the use of hydrogen dioxide and careful instrumentation, I dry it out with paper cones, still using great care not to use them so as to form a piston before which moisture may be forced through the foramen. The canal should then be filled with alcohol and a hot wire introduced. I use a wire heated by electricity, but the Evans root-canal drier, or even a simple wire heated in the flame of the alcohol lamp, may be used. The alcohol combines with the water remaining in that portion of the tubules adjacent to the pulp canal, and the diluted alcohol is evaporated by the heat of the wire. This treatment should be continued until the dentine lining the root-canal is thoroughly dessicated.

The reasons for this are twofold. Dessication is, in itself, a sterilizing agent. But a more potent reason is to be found in the fact that wet dentine presents greater difficulties when the use of a Gates-Glidden drill is contemplated than dry dentine. More failures in the use of the drill in canals are attributable to wet dentine than any other cause. More broken drills are due to wet dentine than to carelessness in handling.

The next step in the treatment is the use of sulphuric acid in the canal. In my opinion, a forty per cent. solution of commercial sulphuric acid in water will give the best results in the majority of cases. I have used as strong as a fifty per cent. solution to advantage. If the solution is stronger than fifty per cent. it has a tendency to disintegrate the cotton on which it is most convenient to introduce it. With a drop or two of the sulphuric acid solution at the entrance to the canal, I use a new broach, pumping the solution into the canal in the manner that is familiar to you all. This pares away all rough places in the canal and disintegrates the inorganic constituents of the dentine with which it comes in contact. After reaching the constriction at the end of the root, or, if the case seems to call for it, before that time, I introduce a few drops of a saturated solution of sodium bicarbonate. The chemical reaction between the sulphuric acid and the sodium bicarbonate results in the formation of carbonic acid gas. If enough of the acid and alkali are used, audible explosions of carbonic acid gas may be heard issuing from the canal. This is an event to be desired and looked for.

In this connection it may be well to state that occasionally a broach may be broken off in the root-canal. When this occurs no effort should be made to remove it by instrumentation. Such an effort is almost certain to result in the fragment being pushed further into the canal, and possibly wedged firmly down near the apex. As soon as it is ascertained that a fragment of broach has been broken off, the canal should be filled with the acid solution and some of the sodium bicarbonate solution placed in the crown cavity or pulp-chamber. As the alkali works its way rootwards, successive explosions of carbonic acid gas will occur, until eventually gas will be formed by the action of the alkali on the acid in the root-canal beyond the broken broach, and the latter will come up into the crown cavity in a boiling, frothy mass of matter. This seldom fails.

When the apex of the root has been reached and the walls of the canal have been smoothed by the broach and acid, the dentine should be again dried with alcohol and a hot wire, and drills should be used to enlarge the canal. At least two sizes of drills are necessary, as the object is to give the canal a cone shape with the apex at the end of the root. The use of the acid renders the following of even quite crooked canals an easy matter. The acid partially disintegrates the mineral matter of the dentine, which, when dry, is most easily cut away.

The enlargement of the canal also serves a twofold purpose. It renders the introduction of dressings, medicaments or root-canal fillings an easy matter. But, more important than that, it cuts away the zone of dentine along the canal, in which it is reasonable to suppose disintegration of the organic matter and consequent infection has occurred. That is a most important achievement. The removal of this infected dentine also leaves the open mouths of the tubules ready for any medication that may seem necessary.

I said before that if there is caries in the crown at all it is fair to suspect infection of the dentine adjacent to the canal. Miller proved this by showing cases where the micro-organisms of decay had passed through the tubules of the crown of the tooth to the pulp-chamber and down the pulp-canal fully half way to the apex, disintegrating the fibrils along the walls even before serious loss of tissue had occurred in the crown. And I also stated that if there were good grounds for suspecting infection of the entire area of the root-canal, infection of the tissues beyond the apical foramen must be considered. On the principle that "prevention is better than cure," I treat every case of partial or total cessation of function in the pulp the same. In these cases I proceed as above described, except that I get a free opening through the apical foramen into the tissues beyond. I do this usually with a drill. When an opening has been obtained I pump sulphuric acid through into the tissues beyond, following it with the sodium solution. If diseased bone is present, the acid has a most beneficial effect upon it. If no diseased bone is present, the acid, if followed up with the alkali, produces no ill effects.

If a so-called "blind abscess" exists, this method of treatment is most beneficial. If a fistulous opening exists, I pump the acid clear through until it comes out on the gum. In case of a recurrence of the abscess after the root has been filled, or in case of a very crooked root with a blind abscess on the end, I inject the gum with nirvanin, make a crucial incision, dissect back the flaps and make an opening through the alveolar wall to the end of the root. I then amputate the end of the root and burr away the bone freely. This operation is much easier and simpler than extracting a tooth, and the percentage of absolute cures is very high. It is almost a certain result.

I use chloro-percha and gutta-percha cones with which to fill the canal. I am not strenuous in regard to the material with which the canal is filled. The treatment of the canal, therapeutic and operative, is of more importance than the filling material, although the latter should be the best of which we have any knowledge. Gentleness in introducing the filling material is of the greatest importance. Hasty introduction of the gutta-percha cone may make air pressure through the foramen that will cause great pain, pain that cannot be relieved until the cone is withdrawn.

FORMALDEHYDE IN DENTISTRY.

By Dr. George T. Baker, Boston.

Formaldehyde (CH_2O) is not a new product, but is one whose properties and uses are not at present fully understood. For a number of years it has been known that it was a most powerful germicide, antiseptic, disinfectant, and at the same time comparatively harmless to the higher forms of life. In addition to these qualities it is a very diffusible gas, and for this reason has been adopted by almost all the large cities for disinfection of dwellings and their contents after infectious diseases. It is also used in the preservation of foods. One part formaldehyde in thirty-two thousand is said to preserve milk for several days. Gelatine, when mixed with formaldehyde, is insoluble in boiling water. This fact is useful in photography. The fact that water absorbs the gas readily, to the extent of a forty per cent. solution, renders it easy of application as a disinfectant in the fluid form. It is this aqueous solution that is found in the market, and it can be mixed with water to form any degree of strength desired.

The different uses to which it has so far been put and the strength in which it seems best adapted to exert its antiseptic and hardening powers are given in a table by F. J. C. Bird (*Pharmaceutical Journal*). The one part of formaldehyde in this table represents two and one-half parts of the full strength, or forty per cent. solution of commerce. A solution of formaldehyde—1:250,000 kills anthrax bacilli; 1:50,000 prevents the development of typhus bacilli, etc.; 1:32,000 preserves milk for several days; 1:25,000 forms a useful injection in leucorrhœa, etc.; 1:20,000 preserves wines, weak alcoholic liquids and beer; also milk for several weeks; 1:4000 recommended for moistening paper used to cover jam, etc.; 1:3200 for rinsing dairy vessels, etc.; 1:2500 destroys the most resistant micro-organism in one hour; 1:2000 for rinsing casks and vessels intended for liquids liable to fermentation; 1:500 as a mouth-wash; 1:250 to 200 as a general disinfectant solution for washing hands, instruments, etc., in surgery, spraying in sick rooms, as a deodorant; 1:160 to 100 hardens microscopic tissues, which should be immersed for a considerable time to give the best results; 1:1000 in lupus psoriasis and skin diseases; 1:50 to 25 sterilizes surgical catgut, silk, etc., by steeping; 1:25 for quickly hardening and preserving for microscopical sections; longer immersion in a weaker solution gives better results; 1:10 for hardening very firm tissues in pathological and histological work; 1:5 for hardening firm tissues in such work; 1:2 1-2 for hardening soft tissues for the same purpose.

The fact that formaldehyde is non-poisonous and has no odor of its own but what is easily dissipated, makes it useful in many different ways. We have so many products useful in dentistry as germicides, disinfectants, antiseptics and deodorants, that it may seem unnecessary to add to the list, but formaldehyde seems to possess qualities that in some cases recommend it above all others.—*Digest.*

LIBRARY
COLLEGE OF DENTISTRY
UNIVERSITY OF CALIFORNIA
SAN FRANCISCO

THE USE OF SOLIDIFIED FORMALDEHYDE IN TREATMENT OF ABSCESSED TEETH.*

BY F. B. LAWRENCE, El Dorado, Kan.

The description of my treatment and success with one blind abscess that refused to become amenable to all my known methods of treatment will describe for all—to me, at least—the almost wonderfully successful results.

Mrs. R., aged 25, desired a bridge of three teeth ; one of the abutments was a superior right canine, pulp dead, and from the cologne disseminated, would say that it had been dead about one hundred years. Removed said corpse, absorbed all pus possible with paper points, washed with pyrozone, dressed with creosote and cotton and dismissed for forty-eight hours. She was back in twenty-two hours and "hadn't slept a wink all night." I labored assiduously with that tooth for three or four weeks. Three different times I placed a trial root-filling of gutta-percha point and as many times removed the same the following morning. The last time, standing before my table, wondering for professional and financial reasons how I could conquer that tooth, my eye fell upon a bottle of pure formaldehyde in solid form prepared by Dr. George Scinniger. Knowing the unique effects of this powerful gaseous germicide (which I burn in my office nearly every Saturday night, especially if epidemics are prevalent), I reached for it, in despair filled the pulp chamber with the same, placed cotton pellet and dismissed the case until the next morning. She returned on time and made the surprising statement, "It hasn't hurt a bit." Removed cotton and found formaldehyde gone ; made another application ; in forty-eight hours filled root and in two more days prepared root and completed the bridge. Six weeks later I had the satisfaction of hearing her say : "It is the best tooth I've got."

The ability of this gas to work beyond the apex of the root, follow the tubuli of the dentine to the cementum, its ease of application and the absence of strangling fumes as in its aqueous solution, and my success with every tooth treated, compel me to believe that in solidified formaldehyde is found the "sine qua non" for dead teeth in all stages and environments.—*Items of Interest.*

---

*Extract from Article in Western Dental Journal.

A NEW SOLDERING INVESTMENT.*

BY W. BOOTH PEARSALL, Dublin.

This is a powder, is sifted from the decomposed granite known as "cornish stone," from which is prepared the "cornish clay" used in the potteries, known to science as "kaolin," and is the principal ingredient in the manufacture of porcelain.

William Cookworthy, the famous potter of china in Plymouth and Bristol, was the first to discover kaolin in Cornwall about 1755. It derives its name from a high hill near King-tik-chin in the Celestial empire, named Kao-ling or "lofty ridge." Cornwall is the only county in Britain which supplies this mineral. It is also found in Nebraska and some of the Eastern States of the United States of America. * * *

This powder is of a gritty nature, composed of grains of different sizes. The larger grains will pass through a sieve having twenty-four meshes to the linear inch. The smaller grains are finer than the finest pumice powder. The sand should be used in the proportion of two parts of sand to one part of plaster of paris, with sufficient added water to make such a plastic mass as will successfully bed the work to be soldered. * * *

As a polishing agent for vulcanite this sand, compared with pumice, is much more effective. With felt cones or cork the vulcanite surface is more rapidly polished than by the use of sand paper followed with pumice. As I have said before, the ordinary assistant will not like it because of its coarseness as compared with pumice. I am satisfied, however, that it is a more rapid agent for polishing vulcanite work, and the practitioner will do well to disregard any opinions about coarseness, and have its qualities thoroughly tested by himself. I scoured an old vulcanite plate in order to test the matter, and found no difficulty in more rapidly restoring the defaced surface than by the usual method.

It is not a good material for polishing gold, as it makes severe scratches on the soft metal, which takes some labor and time to efface.

---

*Extract from Article in British Dental Journal.

CONVEX PRISMATIC SPECTACLES FOR DENTISTS.

A dentist's eyesight is his greatest possession, and yet many are careless regarding it. But, whether normal or defective, there are times when every dentist feels the need of assistance in the way of some good magnifier to inspect the teeth or mouth. Many dentists wear glasses for operative work only, but if they possess much magnifying power and the eyesight be normal, there results a straining of the eyes.

Some dentists use the ordinary magnifying lens and some the jewelers' eye-glass to assist in the making of fillings, etc., but these afford the use of one eye only, and eye-strain is apt to result.

In a recent issue of the *British Dental Journal*, Dr. W. B. Pearsall calls attention to a new kind of spectacles that seem to remove all objections to the use of magnifiers of various sorts, and are just as effective. They are referred to as Professor Landolt's convex prismatic spectacles. With them one can use both eyes, getting the stereoscopic effect desired, and leave the left hand free for use.

Of them Dr. Pearsall says: "I have been using spectacles of this type for several months in systematic examinations of teeth, and of newly-made dentures. There is a total absence of eye-strain, and the focal distance is a convenient one for a dentist to use. It is a very great help in the examination of spots or stains, many of which are active foci of disease, although they are minute or of relatively small diameter. The examination of the sulci in the crowns of teeth can be made with greater ease and certainty than with the ordinary convex lens, as well as the fit of inlays. I have asked my kind friend, Dr. Patrick Maxwell, one of the surgeons of the Royal Victoria Eye and Ear Hospital, to describe the optical nature of these lenses, so that, if other dentists wish to secure the aid of such invaluable spectacles, they can do so through the help of any competent oculist."

Regarding them Dr. Maxwell says: "A prism refracts light towards its base. If, therefore, a pair of prisms be held before each eye, with their bases towards the nose, light from a near object is rendered less divergent, and the convergence of the eye is in consequence diminished. By grinding a convex surface on each side of a pair of prisms, which are then placed in a spectacle frame with their bases towards the nose, an arrangement is obtained whereby an object can be brought very near the face and is seen comfortably, because accommodation and convergence are simultaneously relieved. For persons under forty-five years of age a lens of + 6.D, combined with a prism of 12° base in. for each eye, usually gives a working distance of from five to seven inches; but the glass for one or both eyes may have to be modified and even a cylinder introduced to suit the focus. Unless the vision is perfectly normal, an oculist should be consulted."

PULP "MUMMIFICATION."

The paper by Dr. Gebhardt, on "Mummification of Pulps," reproduced from the *Dental Digest* in this issue of the *Brief*, is probably but the forerunner of many similar records of the failure of a method of dealing with devitalized pulps, much exploited during the latter half of the last decade.

The salient feature of this method is the removal of the coronal portion of the newly devitalized pulp only, leaving the contents of the root-canals to be acted upon by various antiseptic and, presumptively, preservative agents placed in the pulp chamber in lieu of the usual filling materials.

To render the preservative properties of these antiseptics more lasting, they are re-enforced by hardening or "tanning" agents, such as alum, tannic acid or formaldehyde, the object sought being to render the pulp more resistant to putrefaction by reducing it to a leather-like consistency, through their chemical action on its albuminoid and gelatinoid constituents—in short, to "mummify" it.

The fact that one essential factor in true mummification is dryness, and that, strictly speaking, animal tissue can not be said to be mummified unless it is desiccated, might be passed without comment, were it not for the pathological significance of moisture as associated with devitalized pulp tissue in the roots of teeth, where, at a temperature approximating body heat, it furnishes one of the indispensable elements of a culture medium for septic organisms; so that, granting that the "tanned" tissue is a mummified pulp, its dentinal encasement is far from being a typical mummy case in a mummifying environment.

Not less significant is the fact that the fluids derived from the blood serum, with which the walls of a root are bathed, not only supply moisture, but are endowed with a solvent quality under which almost any substance susceptible of gastric or intestinal digestion is, if left for a sufficient length ot time in a root-canal, softened and generally dissolved and absorbed. This is evidenced by the ultimate disintegration and partial or complete disappearance of vaseline, wax, paraffine, salol and allied substances when employed as root fillings. Hence the assumption that a pulp once mummified will remain a constant and changeless quantity in a pulp-canal is both theoretically and practically fallacious.

There is always a lurking danger in the presence in a pulp-canal of dead animal tissue, however fortified against decay. Its harmfulness or innocuousness are dependent upon a complex of conditions difficult to formulate. The most obvious fact, however, is that the danger from a dead pulp is directly as its bulk and inversely as its resistance to decay; inversely, also, as the resistance of the root investments to the morbific products of its putrefaction when decay does occur. The less the mass of putrescent matter, the less the volume of poisonous principles evolved, and the less the probability that the forces of tissue defense will succumb to their toxic power.

Fortifying pulp tissue against putrefactive organisms by an arsenal of antiseptics stored up in the pulp chamber as a base of supply to be indefinitely drawn upon, might be well enough could there be any assurance that the arsenal will not be captured by a flank attack around a leaky filling, or by invasion through a highly permeable apical foramen. But even if this highly probable contingency does not arise, there is every likelihood that the antiseptics thus far declared desirable and of approved value in pulp mummification will all, sooner or later, undergo absorption through the dentinal and cemental walls of the tooth.

The idea that the apical foramen once sealed, those walls form an impervious barrier against the osmotic ebb and flow of solvent fluids is not tenable; on the contrary, the dentinal tubuli and cemented cells, by their direct connection with the circulatory current of the peridental membrane, are kept charged with fluids in ceaseless molecular activity and responsive to all the influences, chemical or physiological, by which, through endosmotic and exosmotic processes, an equilibrium between them and the fluids of the pulp chamber is maintained.

Under such conditions, only such antiseptics as are highly resistant to solution can for prolonged periods preserve their molecular integrity and antiseptic power. Of these, the most powerful are of inorganic origin and undesirable for purposes of root antisepsis, either because of their irritant quality or their discoloring effect.

The only effective way in which a pulp-canal can be maintained in an approximately aseptic condition is by sealing it, not only at both ends, but for its entire length. For the average case probably nothing more effectively accomplishes this than gutta-percha, which, by the aid of heated instruments, can be forced into quite minute prolongations of the pulp-canal, and can be packed firmly against the orifices of the dentinal tubuli. Others of the plastics, when thoroughly packed, are also excellent for the purpose. Tightly-fitting metallic points, such as those of Weld, are likewise effective, and have the advantage of being aseptic, a quality in which, owing to their porosity, the plastics are lacking. With such agents at our command, and such aids in gaining access to and removing the contents of pulp-canals as are furnished by dental engines, electric motors and improved burs and drills, there would seem to be little, if any, excuse for abandoning, on the score of a saving of time and labor, methods of approved efficacy for one at best but experimental, and the percentage of failures from which, already formidable, is sure to increase with the progress of time.—Editorial in *Brief.*

PRACTICAL PLACE.

To Devitalize the Pulp.

It often happens that the pulp is exposed on the distal surface of a second molar and is exceedingly difficult to reach with the devitalizing agent without endangering the gum tissue. In such cases it is expedient to drill a hole in the crown of the tooth sufficiently deep to hold the medicament and the protecting plug ; then place the same accordingly. The result will be found very satisfactory, although it may sometimes require two applications.

Formaldehyde.

Formaldehyde is at present the most popular antiseptic and disinfectant. It is found in the market as a forty per cent. solution. Eight to ten per cent. destroys the spores of micro-organisms in ten minutes. A one per cent. solution destroys cultures within an hour, and disinfects and renders feces odorless. A three per cent. solution will remove all infection from the hands; and one part in ten thousand prevents the growth of pathogenic micro-organisms.—*Am. Med. and Surg. Bulletin.*

TOUGH PLASTER CASTS.

Plaster casts may be made so tough that they will bear the driving of a nail into them without cracking by immersing them in a hot solution of glue for a sufficient time to permit it to permeate the entire mass.—*Scientific American.*

CEMENT FOR CHINA, METALS, ETC.

It is said that litharge and glycerine mixed to the consistency of cream, make a valuable cement for china, stone, iron, etc.

SOUR STOMACH.

A teaspoonful of glycerine at meal time, in water or coffee or tea, will cure a sour stomach and overcome flatulency.—*N. Y. Lancet.*

TO KEEP ALCOHOL ABSOLUTE.

Place in it a sheet of gelatine, which by its affinity for water maintains the strength.—*Med. Record.*

TO CHECK THE FLOW OF SALIVA.

A piece of ordinary absorbent cotton, twice the size of a pea, saturated in sandarac varnish and placed over the mouth of Steno's duct, with a large piece of bibulous paper to hold the cotton in position, will check the flow of saliva sufficiently to allow the treatment of superior molars or the insertion of a simple filling.—C. B. COLEMAN, in *Items of Interest.*

GUTTA-PERCHA IN SETTING CROWNS AND BRIDGE-WORK.

I am a strong advocate of gutta-percha, because it acts as a cushion, and in case of a patient accidentally biting upon a piece of shell or solder (as found in canned goods), or a piece of bone, the jar is not nearly so great. Also, if accident *should* happen to a bridge or crown, requiring its removal, it is almost as easily done as removing a plate from the mouth.—A. W. MCCANDLESS, in *Dental Review.*

SEPARATING RUBBER.

There is a great tendency in rubber to follow the sloping surfaces of the teeth and insinuate itself into the interproximate space, forcing the gum tissue out and injuring it seriously. The gum should be protected by building a bridge of gutta-percha or cement, extending from the gingival portion of the cavity across the interproximate space, against the next tooth. —C. N. JOHNSON, in *Dental Review.*

FLUX FOR SOLDERING GOLD WORK.

Boracic acid, one ounce ; ammonium carbonate, ten grains ; sodium bicarbonate, one drachm ; aqua ammonia, one-half ounce ; water, four ounces. Boil all together till the mixture ceases to give up fumes of ammonia. Slightly paint the parts, which should be united by the solder, with the mixture.—*Ohio Dental Journal.*

SENSITIVE DENTINE—DR. BOGUE'S METHOD OF TREATING.

In sensitive dentine, when patients are extremely timid, Dr. Bogue dips a pledget of cotton into carbolic acid and then into powdered cocaine, and places it in the cavity. This, he says, will obtund the sensibility enough to use granulated chloride of zinc with little or no pain. In ninety seconds the insensibility of the cavity is complete.—*Dental Brief.*

ORTHOFORM—RELIEF OF TOOTHACHE.

A plug of cotton steeped in an alcoholic solution of orthoform is recommended for relief of toothache. The pain instantly disappears for a considerable time. The remedy is non-toxic.

SENSITIVE DENTINE—ORTHOFORM.

When excavating causes great pain, dry the cavity well, lay in orthoform and close with wax. After one or two days the cavity may be prepared painlessly, or at least with greatly lessened sensibility.—WM. ROTENBERGER, in *German Dental Weekly.*

MERCURY AS AN AID IN SECOND SOLDERING.

Immerse the solder (which you are about to use for secondary soldering) into quicksilver, and the latter immediately gives the solder a silvery coat. Then quickly place the solder in the desired position and apply the heat. Solder which has incorporated with it a sparing amount of quicksilver will melt readily and run very easily. The quicksilver does not in the least affect the color of the soldered piece, since the heat while soldering causes the mercury to evaporate.—*Dental Digest.*

To Painlessly Remove Amalgam Fillings.

We are frequently called upon to remove an old amalgam filling in order to insert gold or new amalgam fillings, and the operation of removing the old fillings is often more painful than to shape a cavity preparatory to receiving a first filling. Now the operation can be quickly performed without any pain if you will apply the electric battery to the old filling. The galvanic current will immediately eliminate the mercury, and as the latter sweats from the metal you can gather it, thus preventing it from coming in contact with the tissues or person. After the mercury has been exhausted the filling remains as so much powder or alloy, and with chip-blower and spoons you proceed to remove the old metal.—*Dental Digest.*

Sometimes Teeth Become Devitalized in the Entire Absence of Decay.

Recently a man presented with an exceedingly sensitive cuspid, which had been paining him severely for several hours. There was no decay of tooth, but there was some change in color, so we decided to devitalize the pulp. Immediately upon opening the chamber an exceedingly offensive odor came from it, although there was no discharge except a little vitiated pus. In a moment the pain was gone and the soreness abated, so the canal was thoroughly cleansed, treated antiseptically and temporarily filled. No trouble occurring, after several days the tooth was permanently filled and has caused no disturbance since.—J. Taft, in *Dental Digest.*

Regulating Plates.

In the construction of regulating plates covering the bicuspids and molars, the masticating surface should be made as effective as possible. A comfortable bite is obtained by closing the opposing teeth into the waxed-up plate ; then cover with tin foil and close the teeth again to press the foil into the bite marks, and flask. The bite marks can be roughened with an engine bur.—E. A. Councell, in *British Dental Journal.*

RAILROAD GRAMMAR.

"What was the next station?"

"You mean what is the next station."

"No. What was it, isn't it?"

"That doesn't make any difference. Is is was, but was is not necessarily is."

"Look here, what was, is, and what is, is. Is was is, or is is was."

"Nonsense. Was may be is, but is is not was. Is was was, but if was was is, then is isn't is or was wasn't was. If was is, was is was, isn't it? But if is is was then—"

"Listen. Is is, was was, and is was and was is; therefore is was is and was is was, and if was was is, is is is, and was was was and is is was."

"Shut up, will you! I've gone by my station already."

—*Life.*

TREATMENT OF SOCKET AFTER TOOTH EXTRACTION.

Primarily most teeth are extracted because their roots are diseased; consequently it should be expected that the sockets also would be in a diseased condition. An abscess sac may be torn away from the end of the root and remain in the socket; carious or necrotic bone may be present; pus may drip from the socket, causing infection at the orifice and sloughing of the gum tissue. After an extraction the socket, then, should be thoroughly cleansed, necrotic soft tissues removed, and thorough examination made for carious bone. Cleanse until nothing but healthy tissues remain. Irrigate with an antiseptic and insert an antiseptic dressing. Watch the case for a week to be sure that all diseased parts have been removed and that healing proceeds.—R. OTTOLENGUI, in *Items of Interest.*

TO SET CEMENT RAPIDLY.

If it is desired to have the cement set quickly and remain very hard, add a sparing amount of finely powdered borax to the cement powder and the effect is obtained. This method will give good results in bridge-work and in fillings which indicate a quick-setting cement.

ORTHOFORM AFTER TOOTH EXTRACTION.

Pack the socket lightly with moist cotton dipped in orthoform; absolute cessation of pain follows.—H. G. KAHLO, in *Indiana Dental Journal.*

FOR SENSITIVE DENTINE.

For sensitive dentine two doses of chloral hydrate of ten to fifteen grains each, one to be taken the evening before on retiring, and the other next morning before operation begins is better than cataphoresis or anything else I have ever tried.—J. T. CRENS, in *Headlight.*

EXTERNAL OR LOCAL APPLICATION.

When a cavity exists or a root is exposed; in periodontitis, and for the pain following the extraction of a tooth, administer one or two five grain "Antikamnia Tablets" or "Antikamnia and Codeine Tablets," and fill the cavity with Antikamnia.

For the pain produced by an exposed pulp, dead pulp, an abscessed root, inflammation of the peridental membrane, pericementitis or pyorrhœa alveolaris; in trigeminal neuralgia, odontalgia, threatened alveolar abscess and pulpitis; administer one or two five grain "Antikamnia Tablets" or "Antikamnia and Codeine Tablets," and apply Antikamnia about the affected parts.

SUMP AND FRYITE.

A mixture having almost the same properties as these can be made by the following formula:

Potter's clay	4 parts.
Plaster	3 parts.
Mica	1 part.

An investment, which stands a high heat without change of form, has been suggested by R. L. Zellers:

Pulv. soapstone	1 part.
Plumbago	3 parts.
Asbestos, grade 3	5 parts.
Plaster of Paris	7 parts.

Mix thoroughly and sieve.

Asbestos, by itself, makes an excellent investment. That known as woolly asbestos, or the powdered, when mixed with water or alcohol, may be quickly molded as required, and the heat can be at once applied. It holds its form thus used, hardening as the heat is applied, and with a little care replaces fully in many operations the plaster investment, with the advantage of cleanliness and saving of time.—DR. KEYSER.

"THIS Christian Science business is a great thing," remarked the Conversational Conductor the other day as he helped an elderly female off the car. "Seein' that woman's false teeth reminded me of it." "Do you believe in it?" asked the passenger to whom the observation was addressed. "Do I believe in it? I can't help meself, me friend. I seen a demonstration of it with me own eyes!" "That so?" "Yes, sirree. For three nights the woman had a howlin' toothache, and tried Tooter's Toothache Tablets and Packham's Pain Paralyzer and Grimby's Gum Globules and everything else the drug store had, but her teeth were holler and kept on achin'. Fin'lly she thought she'd go in for Christian Science, so she got one of them prayin' doctors to come around to the house. They prayed together for two hours and the old woman went to sleep like a baby." "Christian Science treatment was all right, was it?" asked the passenger. "All right? I should say it was!" answered the Conversational Conductor. "Mebbe you won't believe it, but when she woke up in the mornin' and looked in the glass, every holler tooth in her head—seven of 'em in all—was filled with gold! Move up front, please!"—*Record.*

STABLE SOLUTIONS OF COCAINE.

Aqueous solutions of cocaine hydrochlorate, which ordinarily deteriorate rapidly, may be preserved unimpaired by the addition of twenty-five per cent. of euthymol. For most purposes the pure euthymol may be used instead of distilled water, since solutions thus prepared will keep indefinitely. For ocular instillation a stronger solution of cocaine in euthymol may be diluted with water just before use. The following formulæ are suggested as thoroughly practicable in office work:

Four Per Cent. Solution.

Cocaine Hydrochlorate, 18 1-5 grains.
Distilled water, 6 fluidrachms.
Euthymol, 2 fluidrachms.

Ten Per Cent. Stock Solution.

Cocaine Hydrochlorate, 45½ grains.
Euthymol, 1 fluidounce.

This solution will keep indefinitely and may be reduced to any desired strength by the simple addition of distilled water. —*Therapeutic Notes.*

NIRVANIN.

A number of extractions were made from persons of varying ages, with invariably satisfactory results after the use of nirvanin. We brushed the gums with a five per cent. solution, or applied tampons saturated to the gums, which produced the dual effect of anæsthesia and antisepsis. The gums were also injected to the periosteum, on both sides, the finger gently pressed on the point of injection to prevent an outflow of the liquid. I prefer to make the solution at the time of using. I have had made tablets of nirvanin, each containing 0.25 grammes, of which I dissolved one or two in ten c. cm. of water for immediate use. No after-effects appear, and no pain. Hearing is always normal.—ROBERT MARCUS, in *Dental Register*.

PREVENTION OF DECAY.

Dr. J. Leon Williams says he relies chiefly on a strong solution of hydronaphthol in oil of cassia in his own practice. This he uses freely in all cavities. Before filling he uses a varnish of Canada Balsam in chloroform, in which there is 10 per cent. hydronaphthol.

METHOD OF TAKING AN IMPRESSION AND BITE IN PLASTER WITHOUT CUP FOR CROWN AND BRIDGE WORK.

After adjusting the attachments to the roots, mix plaster a little thicker than for ordinary impression; take a smooth spatula and place the plaster around the attachments and spaces between the attachments and remaining teeth, if any, then have the patient close the mouth and bite into the plaster far enough to cover at least one-third the length of the occluding teeth. Pack the plaster on the labial surface with the finger and allow it to harden, then have the patient open the mouth and remove the impression. If it should fracture, stick it together with hard wax. Any attachment that should not come out with the impression can be removed from the roots and placed in its proper position in the impression, before running the model. If precaution be taken, this will be found to be a very accurate way of taking a correct impression and bite.—J. W. SMITH, in *Cosmos*.

LIBRARY
COLLEGE OF DENTISTRY
UNIVERSITY OF CALIFORNIA
S. FRANCISCO.

THE
Dental Office and Laboratory
FOURTH SERIES

VOL. XIV. PHILADELPHIA, SEPTEMBER, 1900. NO. 5.

WHAT SHALL I DO? OR HOW PROCEED IN CASES WHICH PRESENT DAILY FOR TREATMENT?

BY THEODORE F. CHUPEIN, D. D. S., Philadelphia, Pa.

There are many cases which present for treatment which call for different modes of procedure.

One patient will want the teeth "put in order," without specifying that they have given much discomfort. Another will complain that severe pain is experienced when taking iced water or ice cream. Another will say, "I suffer no pain except I attempt to drink hot coffee or hot soup." An almost universal report is "that the fillings have all dropped out of my teeth, and I wish them replaced." This one will say, "It is only when I eat sweet, acid or salt food, and the food gets between my teeth, that I suffer pain, which I can relieve myself when I pick the food out." Another patient has "a jumping toothache," very severe while it lasts. Still another has constant pain. One doesn't think it is the teeth at all, but "neuralgia," "only when I bring the teeth together the pain is so intense that I cannot eat solid food." Finally, this one is so nervous as scarcely to permit an examination of the condition of the teeth. These are some of the reports or indications which the dentist is called on to tackle.

When a tooth is said to give pain when cold air or iced water touches it, the indications are more favorable to successful treatment. These indications are brought about in the majority of cases by pulpitis.

In such a case we would first cleanse the cavity of all accumulation of food or loose decay, then we would pass a waxed thread through at least two of the spaces back and in front of the tooth to be filled. Should the tooth be giving pain at the moment, we would soothe with one or other of the essential oils or with chloroform.

We may ascertain if the pulp be exposed by filling the cavity with cotton and bringing pressure in several directions on the cotton with a small ball burnisher; or by filling the cavity with pretty hot gutta-percha. Should we feel sure there is an exposure, remove the gutta-percha or cotton, and soothe with any of the essential oils, chloroform, or a paste made with cocaine, acetate of morphia, and a drop of oil of cinnamon. When quiet is restored you will have to determine on capping the exposed pulp or devitalizing.

If the patient can wait for a day, we would tie a string around the teeth *at their necks* on either side of the one to be filled, pushing this up well under the gum. Then we would place a paste made of as much acetate of morphia as would lie on the end of the small blade of a pen-knife, mixed either with the oil of cinnamon, eucalyptol, or carbolic acid, into the cavity, and seal it in with cotton and dismiss. This paste will keep the tooth quiet for twenty-four hours or more. On the return of the patient first remove the cotton dressing, and then the strings. It will be found that the strings will have made the gums around the teeth to which they were applied, quite flabby and non-adherent, and will enable you to apply the rubber dam well on the necks of these teeth, while the cotton dressing will so expose the cervical margin of the cavity as to afford you a clear view. If there is no actual exposure of the pulp, prepare the margins of the cavity, carefully removing all decay. If pain be inflicted in doing this, mix some cocaine to a paste with carbolic acid and carry to the cavity. After this has remained in for 3 or 4 minutes, wipe out the cavity and apply chloride of zinc. This drug, in our hands, is the most reliable of all obtundents, and by using the cocaine paste first, the pain of its application is entirely overcome. The chloride of zinc is best applied to the cavity in crystals. It soon deliquesces, and is more effective than by applying it in liquid form on cotton. The excavation being completed, the parts are now made perfectly dry with Japanese bibulous paper, without attempting to deepen the cavity. From the depth of the cavity you will probably see that no attempt can be made to remove the decay which overlies the pulp without exposing this organ. Therefore let the decayed bone remain. There is considerable difference of opinion regarding the leaving of decayed dentine in a cavity, some authorities going so far as to pronounce it "malpractice." Dr. Robt. Arthur first advanced this idea many years ago. It has been practiced with varying success, the idea being that dentine, although decayed and resting against the pulp, offers a better protection to that organ than any foreign body or material that could be put against it. Our success with this procedure induces us to continue the practice, rather than to remove the decayed dentine, expose the nerve and cap in the usual way.

Now mix a paste of Jodo-formagen cement, and apply over this decayed part. We have had remarkable success with this cement in all cases of pulpitis, or cases such as we are now describing. At one time we found this cement to set so promptly that its use was utterly precluded ; but we have overcome this feature as follows : instead of mixing the cement on a slab, we take a flat, square bottle and fill this with pretty hot water and make use of it as a slab. The cavity is filled with a pledget of cotton soaked in carbolic acid, and permitted to remain until we are ready to apply the Jodo-formagen capping paste, when the cavity is made perfectly dry with Japanese bib. paper. We place the powder of the cement on this warm slab, and next to it a drop of the liquid. We then incorporate the two into a thin paste with a warmed spatula, and dipping a disk of writing paper into it, the size of a large capital O, we lay this over the softened dentine. In five minutes it will be hard enough to scrape away the surplus, if any exudes beneath the paper disk. If the cavity be large or deep some of the cement may be placed over the paper disk. The remainder of the cavity may now be filled either with gutta-percha, phosphate cement or amalgam.

In a record of some forty cases which we kept, where this treatment was indicated, only *one case* returned where it did not prove successful. Our successes emboldened us to continue the treatment, and we have since this failure filled many more successfully.

Should devitalization be determined on, this may be accomplished by the immediate process, or by the slower procedure with arsenic. The painless immediate method of devitalizing the pulp with cocaine is as follows.—An actual exposure may be accomplished painlessly by careful excavation. An area of the minute exposure may be increased in size by the painless application of a paste of cocaine applied to the point and held in place by a small piece of unvulcanized rubber, and pressed on by a large ball burnisher, the pressure being kept up 4 or 5 minutes. This procedure will so obtund the pulp and immediate surrounding dentine, that this may be removed until a fair sized exposure is accomplished. The hypodermic syringe is filled with a few drops of strong cocaine solution, or indeed any good local anæsthetic, and the needle being pushed through a small disk of unvulcanized rubber, the point is passed through the exposure in the cavity and into the pulp as far as it can be without inflicting pain. The rubber is now pressed on by a large foot plugger, or any other applicable instrument, and pressure is gradually, steadily and slowly brought on the piston of the syringe. The pulp is now either infiltrated or surrounded with the obtunding liquid. After the withdrawal of the needle point, free access is made to the pulp, and this may generally be removed painlessly with barbed or spiral nerve extractors, and the roots cleansed.

The immediate removal of the pulp may also be accomplished, in all single rooted teeth, with the exception, perhaps, of the four lower incisors, by what is known as "knocking out the pulp." This is accomplished by shaping an orange wood twig to a fine attenuation, bearing a relation to the form of the pulp, and when the exposure is fairly and directly made, driving this twig into the living pulp. The pain experienced in the removal of portions of the pulp, still adhering to the walls of the root canal, is often quite severe, even after the pulp had been destroyed with arsenic, so that in the "knocking out of the pulp," patients have reported that they preferred the one sudden severe pain of this procedure to the slow and oft repeated one of fishing out the remains with nerve extractors.

The other mode of devitalization consists of the application of arsenic to the point of exposure. Our mode of procedure in this is to incorporate as much arsenic as would lie on the point of the small blade of a pen-knife, with a similar quantity of cocaine, forming these into a semi-thick paste with carbolic acid or oil of cloves, and applying a minute quantity to the point of exposure. Or a small disk of thin lead may be made concave by pressing the butt end of an excavator into it, on a piece of soft wood, filling the concavity with the nerve paste and applying to the point of exposure, securing this in place either with temporary gutta-percha filling or phosphate cement, but never with cotton and sandarac varnish.

When the patient complains that the tooth gives pain when subjected to warm applications, the indications are not so favorable. These symptoms occur when the nerve is in a congested state, or is dying. If not entirely dead, proceed as before, tying a string on the affected tooth and the tooth forward and backward of it. Fill the cavity temporarily with cotton, after making an application of cocaine and arsenic. Never permit a patient to leave your hands until *all pain is subdued.* To expect pain to subside *after a while,* of its own accord, is a vain hope. Alcoholic solutions will seldom obtund pain. Chloroform, chloral, carbolic acid, warm aqueous solution of cocaine, carbonate of soda, morphia, etc., are effective; sometimes one, sometimes another. If pain is induced on the application of arsenic, do not attempt to place it in the cavity *until perfect quiet is first obtained.*

To expose the nerve until a minute drop of blood is observed, and at this point of exposure to make the application of arsenic, is the best way to proceed, although, at times, the application may be made over a layer of disorganized tissue effectively. If the cavity be inaccessible and the removal of the nerves in the roots be impracticable, or only at the expense of time, labor, patience, and no end of trouble, the ganglion in the nerve chamber may alone be removed, and this filled with formaldehyde mummifying paste. Formaldehyde mummifying paste may be put up by any reputable druggist, as follows: It is best put up in collapsible tubes.

Cocaine hydrochlorate, ... grs. x.
Thymol,
Formaldehyde, dry (paraform a a) grs. xx.
Zinc oxide, ... grs. xl.
Glycerine, q. s., to make a paste.

To make this paste, the druggist should triturate the cocaine and thymol first, then add the para-formaldehyde, then the oxide of zinc, and lastly the glycerine, of which very little is necessary. The paste should be put up in a collapsible tube, otherwise it will harden and be unfit for use. We have found it best, when the decay occurs on the disto-approximal and masticating surfaces of upper or lower molars, to fill this surface first, and to make the approach to the pulp through the mesio-approximal and masticating surface. By this procedure the pulp in the chamber and in the roots can be more easily and thoroughly approached.

The pulp chamber being thoroughly opened with nice, new, sharp, round burs, a minute quantity of the paste is squeezed from the tube on the end of a ball burnisher, and conveyed into the pulp chamber, where it is pressed all over and against the root stumps. The paste is held in place with a small disk of either paper or thin lead plate, and the cavity filled with red gutta-percha, phosphate cement, or amalgam. We prefer the former, when, after a year's probation, the cavity may be filled with amalgam or gold.

Should the pulp have been found dead and disorganized, it may be treated with formaldehyde. Take the formaldehyde as you obtain it from your druggist, and to one teaspoonful of it add three teaspoonfuls of water. Use this to treat the dead or putrescent pulp, and then fill by mixing a small quantity of the formaldehyde mummifying paste with a little of the above solution. To do this the rubber dam should always be in position.

Never spare a tooth from grinding. Cut well in order to obtain strong walls and a good view.

If a cavity in a tooth be perfectly painless in its preparation, look with suspicion on such a case. Do not fill such a cavity with anything unless with temporary gutta-percha filling, as you may be sure your patient will return "howling." Such cases invariably point to dead nerves. It were better to open into the pulp chamber *at once* than to fill without doing so. When this is done, proceed as for any other case of putrescent pulp.

When a patient complains that the food packs between the teeth, although the teeth themselves do not give any other discomfort than the feeling of pressure until the food is picked out, make up your mind that there is a decay in one or both of the teeth, between which the food packs, although the tooth may show no outward sign of decay, and proceed to separate the teeth, and force the gum out of your way for subsequent filling, then put in a contour filling.

If a patient comes in suffering with a feeling of puffiness of the gum, or pain in the tooth when biting on it, open into the pulp chamber. You can generally determine if the tooth has a live or dead pulp. When this is done, a minute drop of pus will exude from the vent thus made, or the odor of decomposition will be perceived. If pus exudes, the relief is almost instantaneous; if no pus exudes, open well into the root and cleanse thoroughly with suitable root cleaners, and then pass the finest Swiss broach probe into the root *and through the* *foramina, if possible.* Should this not afford relief, you can make up your mind that an abscess is in the process of formation, and must be abated, or an escape made for the gas or pus. This is not always possible, but relief may be afforded while the abscess forms and makes an outlet for itself. The gums over the affected tooth should be well painted with strong tinct. iodine, and massage made with the finger, on which a little tinct. aconite is soaked. Capsicum bags placed over the affected tooth, on the gum, may be used also, anything, indeed, that will tend to counter irritation. Or lancing the gums, or leeching, will afford relief. Patients have reported to us decided relief from the use of "Wells' periosteal tablets" placed on the gum for this purpose, and Dr. Leo Greenbaum reports considerable success by the internal use of the following prescription:

℞. Acetanilide, ... gr. viii.
Phenacetin, ... gr. xv.
Mix and make into 8 powders.
Sig.—One to be taken every two hours.

Where the pain is on the increase, foreboding a sleepless night, the internal use of a small quantity of bromide of potassium every two hours does much to induce quiet and allay pain and nervousness. Despite this external and internal treatment, pain will be so severe sometimes that sleep and rest are out of the question. It is cruel to let a patient go, feeling sure of what is in store for the sufferer. Actuated by these humane motives, the same authority says that he has been able to procure rest, sleep and a great immunity from suffering in the use of the following prescription:

℞. Chloral hydratis, ... gr. xxv.
Potassii bromidi, ... dr. i.
Mix and make into 3 powders.
Sig.—One to be taken before retiring.

Having used this for the past ten years, he says, "I cannot recall a single instance when the patient failed to spend a comparatively comfortable night, and in the morning pus was discharging through a fistulous opening." As these drugs are both depressors of the heart's action, it is well to be careful in their administration. Should it be known that the patient has a weak heart they will *not* be indicated, or if indicated used in smaller quantities, but to the young, vigorous, healthy or strong the dose is not excessive. If doubt exists about this, the dose may be diminished. In making these powders the druggist should be requested to put them up in paper surrounded with tin foil, otherwise, being very deliquescent, not much of the powder would be found, except they were kept in a very dry place.

When pain is induced on the eating of sweet, salt, or acid food, the treatment is simple, as these indications point to incipient decay. Separate the teeth well, which should be done in all cases where teeth are to be filled, and fill.

When patients are so excited, or fearful of dental operations, as scarcely to permit an examination of the teeth, much of this nervous fear may be overcome by taking from 10 to 15 grains of bromide of potassium on retiring at night, and as much more about an hour before keeping the appointment with the dentist. With such patients it were best only to make "a show of work," or doing what we know will not cause the least pain, so as to overcome their excitability and induce an inward confession that no pain was experienced.

In filling children's teeth, where it is impossible to keep the mouth dry, or to excavate the cavities, by wrapping a short probe with cotton, moistening this with a saturated solution of nit. of silver, and rubbing the cavities well with this, and following this with the application of a little common salt, and then filling with copper amalgam. This is all that may be done, except the child be more than ordinarily reasonable and tractable, and submits to a little pain, which we do not generally find the case at the fourth or fifth year. Should the decayed places be between the teeth, as for instance between the upper or lower temporary molars, we should not hesitate to place this amalgam, bridging from tooth to tooth, absolute dryness not being essential when this amalgam is used.

A jumping toothache is not generally a difficult one to tackle. It does not indicate an exposed nerve, but one nearly so, and is amenable to the soothing influences of obtundents or the essential oils, to secure comfort, when the teeth thus affected may be successfully filled.

Should the patient complain of a discomfort, not amounting to actual pain, but of a dull character, which cannot be located, and no cause can be assigned for this, the teeth appearing perfect, examine well for small, almost imperceptible decays in the sulci or depressions of the bicuspids or molars. Sometimes decay will attack the dentine of a tooth through these minute openings or imperfections in the enamel. The whole tooth may be eaten away, leaving the outer covering of enamel intact, except these minute places. Therefore, it is best to fill these minute places before such sequences occur.

FORTY-SECOND PAPER.

LEADING QUESTIONS AND ANSWERS FOR DENTAL STUDENTS.

By Theodore F. Chupein, D. D. S., Philadelphia, Pa.

Q. What is canker sore mouth?

A. It is a disease of the mouth, of a follicular nature, common to all ages, but mostly noticed in childhood.

Q. What do you mean by follicular nature?

A. It means that the disease assumes the form of a little sack or bag.

Q. Where are these follicles situated?

A. The seat of this inflammation is principally on the inner surfaces of the lips and cheeks, but they appear also on the gums, on the tongue, and on the roof of the mouth.

Q. Are these pimples large or small?

A. They are about the size of a pin's head, but two or more may coalesce, increasing the size.

Q. What is the color of the vesicles?

A. They are whitish in color, and a few hours after they are formed they emit a whitish exudation.

Q. What is the cause of this aphthous stomatitis?

A. It is generally due to an unhealthy condition, uncleanliness, derangement of the digestive organs.

Q. Besides these painful pimples in the mouth, is this form of stomatitis accompanied with other conditions?

A. It is frequently accompanied with diarrhœa.

Q. What do you mean by aphthous stomatitis?

A. It means an inflammation of the mouth in the form of small, white, round or oval aphthæ or pimples, the inflammation being generally circumscribed around each aphthæ, and not extending over the entire mouth, as in ulcerous stomatitis.

Q. What is the treatment for aphthous stomatitis?

A. Soothing drinks, such as solutions of flaxseed, gum arabic, marshmallow, or a mixture of borax and honey, churned around in the mouth before being swallowed; or the pimples may be painted with a soft swab or camel hair pencil, dipped into the mixture of honey and borax. When the pimples are painful, they may be induced to heal by touching them with the end of a soft pine stick dipped in a solution of nitrate of silver. Chlorate of potash powdered and applied in the same way is also less heroic than the nitrate of silver, and often accomplishes the same end. Cooling cathartics are also indicated; sedlitz powders, citrate of magnesia, etc.

Q. Are these the only forms of stomatitis?

A. On the contrary, we find "thrush," "gangrene of the mouth," "syphilitic ulceration of the mouth," "mercurial stomatitis," "scurvy," etc., but as these are generally referred to the general practitioner, as well as those to which we have alluded, they do not ordinarily come under the care of the dentist.

DISEASES OF THE GUMS.

Q. Do the gums offer any indication of the condition of the constitution?

A. Not always. They vary in appearance according to the condition of the general health.

Q. Do they not offer local indications?

A. Yes. In cases where the teeth are irregular or crowded, or where there is a deposit of tartar on the teeth, or where the teeth are extensively decayed or loose, or when the fluids of the mouth are vitiated, the gums are affected by these conditions.

Q. Is this always the case?

A. No. The general health will influence to a great extent these conditions.

Q. Can you give me an example?

A. The deposition of a little nodule of tartar on the teeth, or a dead or loose tooth, in a healthy person of strong constitution, would not show any indications on the gums further than a little swelling of this tissue, or a slight increase of vascular action at the gum margin; but in person of a scorbutic or scrofulous nature, the gums would assume a puffy, congested, deep purplish appearance about such teeth extending to a considerable distance around these teeth, receding from their necks, ulcerate and bleed at the slightest touch, accompanied with a fetid odor of the breath.

Q. Is this always the case?

A. Not in such a marked degree as we have mentioned, for we find even in persons of good health sometimes a sponginess or an inflammation of the gums.

Q. To what is this due?

A. If a tooth has a wrong position in the arch, a constant tension is kept up on the gum from its mal-position, which causes an inflammation, often of a chronic nature, to ensue.

Q. Why then can we not diagnose from the gums?

A. Although the gums are highly vascular, and are to a certain extent influenced by the habits of the body, they may not be used always as diagnostics to indicate the diseased condition of the system. The condition of the gums, therefore, points more to local irritation than to constitutional condition.

Q. Is this observable at all periods of life?

A. When the forces of growth, as in childhood or youth, are in active operation, there is a greater sympathy between the gums and the digestive system than at other periods of life. These operations of nature often affect the appearance of the gums and change their physical appearance.

Q. When do we find the gums to vary less in their characteristics?

A. During mature life.

Q. Are they subject to changes in appearance as age advances?

A. Yes. The vital energies not being so active as age advances, morbid action takes place, and the gums assume a darker color, are thicker in structure, have a tendency to bleed.

Q. Are these tendencies always present?

A. No. They are noticed more in persons subject to stomach troubles, in exaggerated forms of dyspepsia, and in those persons of a scrofulous tendency.

Q. What is the appearance and condition of the gums in persons of good, healthy constitutions, enjoying perfect health?

A. They present a beautiful pink color, with thin margins, in regular festoons, clinging closely to and with only slight, free margins around each tooth, with well defined firm points in the interdental spaces. When the permanent successor to a deciduous tooth is about to make its appearance, the gum assumes a rather more red color, with slight puffiness. At the age of puberty the gums lose their marked beautiful pink color and retain a somewhat paler color until this period of life is passed, when they again take on the normal color of health. But if from any cause the health becomes impaired, or the teeth take on irregular positions, the gums take on a redder hue, assume a puffy condition at their interstices, swell and are very sensitive to the touch.

Q. Do we not find that even in healthy subjects the gums leave or recede from the necks of the teeth?

A. Yes. A wasting and recession of the gums at the necks of the teeth, particularly on their labial surfaces, are often observed, and this in persons of good constitutions and health. This is, however, more often observed about middle life, and more often in persons having comparatively good teeth.

Q. To what is this supposed to be due?

A. To an atrophy or wasting away of the tissues of the teeth; or to an erosion or lack of nourishment, the result of altered functions in some one or more of the formative organs; or it may be due to a degeneration or faulty nutrition.

Q. May this not be combated?

A. As the condition appears to be the diseased action of the gums, the careful cleansing of the teeth four or five times a day, keeps up a beneficial action in the gums, which goes far to prevent the wasting away at the gum margins.

Q. What may provoke this condition?

A. A person, though healthy, with a good constitution, from intemperance or a life of debauchery may so enervate the organs of the body as to render these, as well as the tissues, susceptible to morbid impressions. The gums may inflame under such conditions, become turgid, puffy, ulcerate, and recede from the necks of the teeth. Again, should constitutional disease ensue, an irritability of the gums follows, with an afflux of blood to the parts, and an apparent stagnation of this fluid in the capillaries, rendering the margins of the gums puffy, swollen, irritable, and inclined to bleed at the slightest touch.

Q. Is this condition easy or difficult of cure?

A. The condition is easily cured by the proper treatment, yet is more difficult when aggravated by constitutional disease or indiscretions of life.

Q. What is the treatment of this condition?

A. Absolute cleanliness.

Q. Are the teeth of subjects liable to decay?

A. No. Ordinarily they are of excellent quality, and although we sometimes find decay present, it is rather the exception than the rule.

Q. In what temperament do we find such teeth?

A. In the sanguineous temperament.

Q. Do we find these conditions to vary in the sexes or in the conditions of life?

A. Yes. Females are more affected than males, and the rich more than the poor; and persons who pursue sedentary habits more than those who use invigorating outdoor exercise.

Q. Do we notice diseased conditions of the gums in other conditions of life?

A. In persons of a scrofulous tendency, or those of the poor who live in cellars or damp places, or who become debilitated from scant or unwholesome food, we find the gums exuding constantly a thin, offensive, greenish, unhealthy exudation, mixed with blood and pus.

Q. Are the gums alone affected by these conditions?

A. The mucous membrane is also affected, and is exceedingly irritable, exuding large quantities of mucus.

Q. Is the condition noticeable at any time of life?

A. It is more noticeable in childhood and early life.

Q. Is it amenable to cure?

A. If a change of residence, and a change of regimen, in persons of good constitutions, are observed previous to the twenty-fifth year, the diseased action of the life of privation and residence may be so combated as to result in great amelioration or absolute cure.

Q. What is the color of the gums of scorbutic or scrofulous persons?

A. They have gums of a reddish-brown color; the margins around the teeth are imperfectly festooned and thick, their structure turgid, and are ready at the slightest cause to become affected by local irritation to morbid action. When excited by this irritation, they assume a dark purple or brownish appearance, swell and become flabby, and bleed easily on being touched. The exhalations are fetid, the union of the gums to the teeth is destroyed, the gums recede, the teeth loosen from the wasting of the alveolar processes, and frequently drop out.

(To be Continued.)

MEETING OF THE NEW JERSEY STATE DENTAL SOCIETY.

ASBURY PARK, N. J., JULY 18, 19 AND 20, 1900.

The meeting of the New Jersey State Dental Society was held in the Auditorium, Asbury Park. The very satisfactory arrangement of last year, holding the meeting in the small hall and the exhibits in the larger one, was adopted this year with equally satisfactory results.

Although the day was excessively warm, the ocean breeze coming through the wide open windows made the meeting-room delightfully cool and pleasant.

The meeting convened at a quarter past eleven o'clock, Wednesday, July 18, 1900, the President, Dr. Wm. E. Truex, of Freehold, in the chair. After the usual routine business the president read the annual address. It was quite short, nicely worded, appropriate, and all the occasion really called for. He first referred to the purposes of the society, and suggested how they, in their various bearings, could be best promoted by the present session. He reminded the members that they owed a duty to themselves, to the State and to the profession at large. It was the privilege of each one to do something for the general good of all as well as to profit by that which others might do. It was their duty to the State, and should be their pride to keep their State Society well to the fore in the progress the profession was making; and their duty to the profession to see to it that the session added something worth the adding, to dental science. He congratulated the society, and invoked their thankfulness to Divine Power, that there had been no deaths during the past year. He announced the organization of a new local society in the southern part of the State, a matter long contemplated but now an accomplished fact. The working of the Dental Law had been, during the year, satisfactory, and was bearing the looked for fruit; there was one matter, however, in this connection to which he directed their attention. He had recently been made aware of the fact that members of the dental profession in New Jersey were not exempted from jury duty. This he thought should receive their earnest attention. They were entitled to and should receive as much consideration in this respect as did the medical profession, and he urged that prompt measures be taken to bring it about. He also spoke of other matters of purely local interest.

After a short business session the society adjourned until evening.

Evening Session.

The society met shortly after eight o'clock. The Committee on Dental Literature presented their report. It was a very poor affair. Such a committee has it within its power to make a report that would prove an interesting and instructive feature at any dental gathering. A brief mention of the new publications, the more notable contributions to our periodical literature, the contributions upon any one of the many lines of thought, a résumé of the year's work of a single journal; in a thousand and one various ways such a committee composed of live and wide-awake men could easily make a report any dental society would be glad to receive and proud to publish.

Dr. H. B. Tileston, of Louisville, Ky., read an interesting paper upon non-cohesive gold. He noted, in the beginning of his paper, that the subject of non-cohesive gold would probably be considered by many as antiquated and somewhat out of date; nevertheless he offered no apology for presenting a paper upon a material which has been relegated to unmerited oblivion by a very large number of dental practitioners. He attributed its disuse largely to the fact that the methods of instruction almost universally employed in dental colleges made it inexpedient to teach the use of non-cohesive gold in the college clinics. While its employment presented no more difficulties than that of cohesive gold, the technics of these two forms of gold widely differed. The filling of a cavity with cohesive gold demands the most careful and accurate attention to every minute detail from beginning to end; each particular piece must be placed and immovably held where it is intended to remain, and its condensation effected at once; while the adaptation to the walls of cavities requires a precision of manipulation and an intensity of application on the part of the operator which but few, he believes, were capable of.

For these reasons the teaching of the use of cohesive gold afforded splendid manual training for the student, and a cultivation of that precision of technic which is so essential to the successful practice of dentistry. One who has become proficient and skillful in the use of cohesive gold will very readily acquire the methods employed in working non-cohesive, but it is not so easy for one trained to the use of the latter form to successfully manipulate the former.

He then noted the physical differences between cohesive and non-cohesive gold, and also the fact that exposure to ammonia gas destroyed the tendency to weld inherent in pure gold. The effect of the ammonia gas was, however, readily destroyed. A slight rise of temperature, the friction of one layer upon another, even the manipulation of placing it in position, is sufficient, at times, to remove this protective film. Gold so treated, he did not consider, strictly speaking, non-cohesive gold. To his mind non-cohesive gold foil is a foil that cannot be made to cohere under any ordinary circumstances. The only gold foil he had been able to obtain that answered this requirement was the non-cohesive foil made by Chas. Abbey & Sons, of Philadelphia. He described at length the properties, and the differences, between these two forms of gold foil, and how, under manipulation, a strictly non-cohesive gold may appear to cohere, as it is claimed to do by some operators who assert that they can contour with non-cohesive gold. Such cohesion he did not consider reliable when exposed to stress. He strongly advocated the use of non-cohesive gold, not in all, but in *suitable* cavities ; it is time saving and tooth saving ; the readiness, and the quickness with which it can be adapted to the cavity walls is a great relief to patient and operator, and it makes, when well done, a more reliable filling than is usually made with cohesive gold.

The discussion which followed, participated in by several who, like the speaker, had used and observed the behavior of non-cohesive gold fillings for many years, confirmed all the claims made for it. They had found it a vast time saver, with rather increased than lessened efficiency.

The next paper, by Dr. F. L. Fosheim, of New York, entitled "The Combination of Oxyphosphate Cement with Gold and Amalgam Fillings," was a very fair presentation of the subject. (Zinc phosphate cement it should have read.) He advocates lining the cavity with a thin coating of a well mixed cement of a creamy consistency, preferring a very adhesive cement, fairly quick setting, and using no more than sufficient to cement the gold or amalgam to the walls of the cavity. The gold or amalgam he adds while the cement is still soft. The cement serves to make a closer joint between the filling and the cavity walls, and by its adhesiveness assists in retaining the filling. In the case of amalgam it is of farther service in that it tends by its presence to preserve the color of the tooth should the amalgam darken. His methods of manipulation differed in no respects from those frequently published. The possibility of the cement having a prejudicial effect upon the pulp was referred to in the paper, and also in the discussion which followed. Cases reported which seemed to favor this were mostly those in which pulp injury might be looked for from other causes; it did not seem to be considered an important factor in the case.

At the close of the discussion the session adjourned for the day.

Thursday, July 19th—Morning Session.

Eugene Underhill, M. D., of Philadelphia, read a paper entitled "The Eyes and Teeth—Some Concomitant Pathological Changes." The title at first carried one back a century or two, when, especially among German writers, the eyes and the teeth were so frequently associated. The last clause, however, gave it a more modern look and sound. It is by no means a new subject, but was handled by Dr. Underhill on somewhat new lines. It is not a paper that can be, without detracting from its value, condensed to the requirements of this brief report. Its purpose was to show how the oculist and the dentist could, by closely observing symptoms constantly before them, be helpful to each other and more helpful to their patients. He pointed out and explained the why and the wherefore of many symptoms which bring patients to the oculist when the dentist is needed; and other symptoms invariably ascribed to the teeth, or perhaps it would be more appropriate to say "dental territory," which the oculist is far more competent to relieve. Other symptoms, again, may belong to either one or the other; to both, or to neither. Various headaches are found in this latter class. These he classified, and directed attention to the more pronounced differenciating signs suggesting the origin of the trouble. A very important part of his paper, and one to which I would direct especial attention and urge dentists to look for, when it, in the society's proceedings or in the periodical the society may select as their official organ, is published in full, is that portion devoted to the early diagnosis of malignant growths; and the diagnostic signs of syphillis seen about the eyes. He urged that the importance of this alone was sufficient incentive to a dentist to be, so far as knowing and being keenly alive to the meaning of these signs which are so prominently before him are concerned, somewhat of an oculist; and on the same ground, he urged, it was equally important that an oculist should be somewhat of a dentist. That either one could take the other's place was not to be expected. They should each, however, know enough of the other's field to be able to distinguish a trouble expressed at its seat from one reflected, and to know whether it requires for its relief a dentist, an oculist, or a general practitioner.

This was followed by what may be appropriately termed a lecture, by Thomas C. Stellwagen, Jr., D. D. S., of Philadelphia, upon "The Blood." It was extempore; it would have been far more impressive had it first been committed to writing and read. The hesitancy, now and again; going back to take up a forgotten thought, or to add an overlooked explanation, not only wastes time, but breaks the thread of the discourse and tends to the listener's losing the connection of ideas. He illustrated his remarks by several diagrams, and had in addition a number of microscope slides. To a large audience, especially when the opportunity is given at the close of a session protracted beyond their usual dining hour, the attempt to show specimens under a microscope that requires delicate adjustment by each observer will always prove unsatisfactory. In this case several were provided; very few availed themselves of them; very few could with profit, as none but an expert would know what to look for unless it was personally pointed out to them. At the present time, the microscopic field can be so accurately photographed and either thrown on a screen or photographic prints of it passed around, that the instrument itself may well be relegated to the laboratory; it has ceased to be the novelty it once was, and its revelations no longer call for an artist's pencil with its coarseness and its unavoidable personal equation for their delineation.

The doctor has made a special study of the blood, and his remarks were, no doubt, a surprise to many. We learned that red and white corpuscles were not the only bodies floating in this all important fluid, nor were they the simple things they were supposed to be in our schoolboy days. We also learned that modern science had in this, as in other lines of investigation, by its increasingly accurate and far-reaching methods, dispelled many illusions of the past. The doctor doubted the positive determination and identification of the origin of blood stains; fresh blood presents a more readily solvable problem. When the stains have become dry, especially when upon a fabric which absorbs some of its constituents, or it has from any cause undergone disintegration, the absolute determination of its origin is an exceedingly difficult task, if not, indeed, impossible. He stated at some length the more recent theories regarding the origin of the various bodies found in the blood, their significance and diagnostic value; and especially dwelt upon the value and the significance of the presence of the unusual forms, and of changes in the relative proportions of those more constant, in the early recognition of impending or established pathological conditions. In many cases changes in this fluid, readily detected by a skilled observer, indicate conditions impending or established long before they are revealed by the usually looked for symptoms; often in time to successfully avail of remedial measures, or to avoid serious consequences. He also spoke of the rolè the blood played in some forms of germ caused disorders, and its relation in various ways to germ pathology and germ therapeutics. Like the preceding paper, it would require a close study by one more conversant with the subject than is the writer to make of it a fair digest. Recognizing this, and also its value as an exposé of up-to-date ideas on an important subject, I have endeavored to give just enough to stimulate in the reader a desire to know more.

This was followed by an interesting event. Some few months ago several members of the New Jersey State Dental Society, who were also members of the Dental Protective Association, compounded with the International Tooth Crown Company for infringements, or alleged infringements of their patents. This has led to a much to be regretted and rather warm discussion in various dental journals, during which the motives of the gentlemen and Dr. Crouse's management and fidelity to the Protective Association have been called in question. Those who personally knew the gentlemen, and also knew Dr. Crouse, felt very sure that, notwithstanding both sides seemingly had ground for complaint, it was a matter that would speedily change its complexion when properly understood. Dr. Crouse was present at the meeting the evening before, and asked that opportunity be afforded to clear the matter up. The time appointed was at the close of this morning's session. When the time arrived Dr. Crouse took the floor. He gave a detailed account of those actions of his which had been called in question; took up one by one the aspersions which had been cast upon his motives and on his management of the affairs of the Protective Association, especially those which had been assigned as excuses for defection from the ranks of the Protective Association. He asked to be questioned upon any points he had not made clear, and promptly answered all questions put to him. Having given his side of the story, he asked that the others, who were present, would give theirs, and while they were together, face to face, clear the matter up. The applause, so prompt and generous, was sufficient evidence that the audience accepted and was satisfied with the story he told. He was followed by those who had been accused of being unfaithful to the Protective Association. In every case there were circumstances that at the time of their settlement with the Tooth Crown Company made that course seem the wisest for them to follow. The circumstances were in each case special and personal, and their explanations were quite as satisfactory as was that of Dr. Crouse. The incident may be considered closed, a misunderstanding, nothing more. The Protective Association is in good shape, and is worthy of our utmost confidence; it has so far done all it undertook to do, and has excellent prospects of being able to do so until the end of the fight.

The afternoon was set apart for the clinics. Dr. W. A. Capon illustrated a method of anchoring porcelain sections or inlays with platinum wire; the wire insuring a more secure hold in the cement. The platinum wire becomes part of the section or inlay, as the porcelain is fused much in the same way that platinum pins are secured in porcelain teeth, and answers much the same purpose. His table was crowded by attentive observers the whole afternoon. Dr. Capon is not only a recognized expert in all phases of porcelain work, but has the rare knack of making his demonstrations so plain and striking that to see is to understand.

Dr. F. L. Fosheim, of New York, demonstrated, practically, in the mouth of a patient the method of using cement in combination with gold, as described in his paper, by filling, in that way, an upper incisor tooth.

Dr. W. V. B. Ames, of Chicago, explained, practically, the right method of using the cements he has recently introduced.

Dr. F. C. Barlow, of Jersey City, demonstrated rubber dam adjustment.

Dr. Geo. Evans, of New York, illustrated, with specimens, facing metallic shell crowns with porcelain. After the crown is fitted to the root he slightly depresses that portion intended to be covered with porcelain by inserting within the crown a metal form fitting the interior as nearly as may be, and cut away so as to permit bending in that portion of the crown to be indented, and tapping on the outside with a small hammer. He then makes in this portion a number of small holes. The porcelain is then applied and fused, being built up to the desired form and contour. For use on gold crowns it must, of course, be of a low fusing variety; upon platinum crowns a high fusing grade may be used. The porcelain may be allowed to run into the crown so as to strengthen and support the occlusial surface. I was not impressed with the specimens exhibited by Dr. Evans. The porcelain seemed very frail, the edges were not as well defined and smooth as one would wish, and the porcelain was unnecessarily exposed to stress of actual use. These defects, I was impressed, belong to the method rather than to the workmanship. The inlay method in my judgment is much to be preferred.

Dr. W. L. Mason, Red Bank, N. J., exhibited and explained the method of using the various forms of detachable porcelain teeth.

Dr. Robert H. Nones, of Philadelphia, demonstrated a method of making the palatal rim for metallic plates intended for rubber attachment. He first made a plate in the usual way; on this he moulded the rim in wax, and then obtained a model in plaster of the palatal portion of the plate with the rim in position. This was reproduced as a metallic die by means of which he swaged up a thin plate forming the rim and covering the palatal portion of the plate, and then soldered this to the first plate. This second plate may serve as the cover to the vacuum cavity, if a vacuum cavity of the Cleavland variety is desired.

Taken as a whole, the clinics were not, in number and merit, quite up to the standard of this society; it is to be remembered, however, that the clinics of the New Jersey State Dental Society are usually exceptionally instructive; a little step down merely brings them to the average of others.

Among the exhibits, Weber's Porcelain Fountain Spittoon, for neatness and cleanliness, deserves especial mention. The bowl is much smaller than the conventional size; it is made of porcelain ornamented with a neat pattern on the outside; fitted with the usual accessories and arrangements for attachment to the chair.

The Unique Electric Device Co., of New York, exhibited a neat mouth and throat electric light, complete with battery in a neat case 4 in. x 4 in. x 1¼ in., weighing only 13 ounces. This sells for $5.25, in a leather case, and for $5.00 imitation leather; for renewal of either the battery or lamp, 50 cents. The battery and lamp are so proportioned to each other that there is but little danger of burning out, while the light is far brighter, and the lamp gives out much less heat than any I have so far met with.

Fox and Garhart Specialty Co., of Toledo, O., exhibit a new electric mallet of very convenient form, operated by a dry cell battery. It sells complete for $25.00. They call it "The Simplex." As far as it could be tested without an actual trial at the chair, it seemed fully capable of doing all that would be required of it. All its parts are within the case, safe from dust or accident; a very desirable feature.

J. W. Ivory, of Philadelphia, among other devices, exhibited an excavator, the cutting edges of which were a small square disk set at a right angle to the handle. It is intended for rapidly removing the softer portions of decay from a cavity; cutting as it does equally well in four directions, it saves the time otherwise lost in changing instruments. He also had a cervical rubber dam clamp so constructed that it, after being firmly secured to the tooth by means of a screw, forces the dam down over the root of the tooth, pressing the dam and the gum beyond the cavity and out of the way of the operator. Also a wedge matrix holder for the molar teeth. He made an excellent exhibit of his various devices; the above are those only noticed as being especially novel. Others of equal merit may have been overlooked.

Dr. Tameji Takashumia, of Baltimore, had an artistic display of his handiwork, consisting of two human skulls and plaster reproductions of the same, exceedingly well done; the plaster models each supported a piece of bridgework of excellent workmanship. Also an upper denture of vulcanite ornamented with an artistic design in varied colored rubbers. Accompanying these were a number of certificates attesting his skill. The exhibit was quite unique.

William Denker, of Dorchester, Mass., exhibited an outfit costing one dollar and fifty cents, for quickly forming cavities in porcelain teeth. It consisted of an abrasive in the form of a paste, and cutters differing in form and shape. The cutters were made of a metal sufficiently soft to permit the abrasive to become embedded in its surface. In practice, the site of the cavity is first abraded with a carborundum wheel, the cutter dipped into the paste will then very quickly form the cavity and shape it as desired. It seemed a practical device for the purpose, better, indeed, than a diamond drill.

John F. Hammond, of New York, had with his exhibits a new electric furnace and rheostat. The furnace was quite small, large enough, however, for inlays and the general run of crown and bridgework. By means of the rheostat the heat can be gradually increased, or if the current is reliably constant, after a little experience the rheostat may be depended upon to accurately gauge the heat of the furnace so as to ensure thorough fusing without danger of overheating. It is capable of fusing any porcelain used by dentists. As a guard against burning out a weak point is purposely made in the wiring just outside the casing, so that in case of accident nine times out of ten the repair can be made by the operator himself. The cost of the furnace and rheostat is $30.00; for five dollars an extra muffle is furnished, which can be quickly put in place in case of a burnout; the rewiring a burnout necessitates is quite inexpensive.

The Ritter Dental Manufacturing Co. exhibited an electric dental engine designed for an alternating current having all the advantages of those made for the direct current. It is started, stopped instantly, reversed, and the speed regulated precisely in the same way as is the direct current machine, and is practically noiseless.

Johnson and Lund, of Philadelphia, made an excellent display. Among the novelties I noted an outfit for crowning frail roots. This device consists of a tube with a screw thread on one end, a drill, tap, engine bit holder and platinum wire fitting the tube to be used for the dowel, or, as we used to say, the pivot. For roots with bell-shaped cavities, frail walls, and yet a fair amount of reliable tissue near the apex, this device has especial value. Properly adjusted, the tube screwed into the root with a thin film of any good cement upon the screw, and the cavity then filled with amalgam, it will make in many desperate cases an excellent operation.

A. S. Rutherford, of New York, distributed samples of a low heat modeling composition. This requires about the same heat as the ordinary yellow beeswax, hardens quickly and is much more rigid, although not, perhaps, as rigid as some of the high heat compounds on the market. It takes a very sharp impression.

While the exhibits were not as numerous as last year, they made a fine display, a very instructive one to an observant dentist, and one well worth traveling a long way to see. I question, indeed, if in any other way a year's progress in these lines can be appreciated, or an up-to-date dentist know just where he stands in the matter of supplies and appliances, than to spend a half day inspecting an exhibit of the best and the latest of many kinds from many makers. The opportunity afforded of comparing the same class of goods from a variety of manufacturers, and of seeing each maker's work compactly displayed; especially when gathered together in a large room and attended by men who pose as exhibitors rather than as salesmen, as was the case here; is a commendable feature of the New Jersey Society meetings. To do justice to the display would require more space than is occupied by this entire report.

At the evening session Dr. J. Allen Osmun, of Newark, N. J., read a paper entitled "Dental Jurisprudence in its relation to State Examining Boards. The Profession. The Laity."

The paper was prompted, Dr. Osmun informs us, by his reading in the *Medical Brief* a series of papers by Dr. R. C. Bailey, of Illinois, contesting the right of Examining Boards and Boards of Health to control the practice of medicine. As the right to control the practice of dentistry rests upon the same grounds as does the right to control the practice of medicine, and the arguments *pro* and *con* apply equally to both professions, the doctor, as a dentist, became intensely interested, not only in this series of articles, but also in others appearing in the same journal, and in essays, etc., on the subject found in other periodicals. He was at first struck with the plausibility of the arguments, but on closer investigation and a more careful reading became convinced that the line of argument was illogical.

The position of the various writers referred to, was in the main, that the Constitution of the United States gave certain rights which could not be taken away; that it gave the right to every citizen of this country to life, liberty and property, and no one could be deprived of any of these personal privileges without due process of law; and the main contention, as he saw and understood it, was that when a person spent money, time and labor acquiring a professional education, this skill and technical knowledge became his property, and he ought not, and in fact could not, legally, be debarred from its exercise anywhere in the

United States, Examining Boards or Boards of Health notwithstanding.

These writers also took the position that if the person was not competent, the place to go for redress was back to the institution granting the diploma, and take from it its charter, or let the individual go on in his own sweet way until he was found unworthy by the public, or had transgressed so far as to be amenable to the law as any other law breaker, and suffer such punishment as the case demanded. After carefully considering the subject in its various bearings, he had formulated questions which seemed to cover the legal points involved, and had submitted them to counsel, requesting from the attorneys so consulted such information as they might be able to impart, not only upon the questions submitted, but also upon such other matters bearing legally, more or less directly upon the question at issue. His paper was largely made up of quotations from opinions thus solicited, and such extracts from periodicals as he thought would make clear the points he wished to present.

The questions submitted were: First.—Has the State the power to prescribe the qualifications and conditions upon which a person shall be admitted or licensed to practice the profession of dentistry? Second.—Has the State the power to regulate and control the practice of this profession, after a person has once been admitted or licensed to so practice?

He assumed that dentistry was one of the skilled and learned professions, standing on the same basis as law or medicine; and that, whatever power the State has over the matters referred to is derived from what is called the "Police Power." Police power in its broadest acceptation means the general power of a government to guard and preserve the public welfare, if need be, at the expense of private rights. It is mainly devoted to the care and preservation of the public health and morals, and is commonly exercised in restricting the action of individuals and regulating their use of property. It is one of the inherent powers of government, and, like the power of Eminent Domain, exists independent of, and is rather limited than created by the Constitution. It is of necessity despotic in its character, and individual and property rights, beyond the express constitutional limits, must yield to its exercise.

The doctor at some length noted the various ways in which this power was exercised without question, all of which were as arbitrary and as much an invasion of private and property rights as is its application to dental or medical practice. Among these was the regulation of the speed of railroad trains and of trolley cars, preventing the adulteration of food, restricting the sale of dangerous drugs or intoxicating liquors.

This police power, he said, can only be exercised by legislative enactments, and it rests solely within legislative discretion to determine when the public welfare or safety requires its exercise. It is an established principle in this country, that so long as the legislature does not pass the limits fixed by the Constitution, the courts have no authority to interfere on the ground that the legislative acts in question violate a natural principle of justice and right.

He then quoted a number of decisions sustaining this position, and also disposing of the argument that the Constitution of the United States conferred certain rights and privileges which the dental and medical laws unduly restricted. He contended that the evidence collected and presented placed beyond question the right of State Legislatures to determine who should and who should not practice either profession ; the right to determine and to fix the qualification necessary to establish such means, and to appoint such agents as they may deem requisite to ascertain whether or not the applicant possesses the knowledge and skill a safe and efficient exercise of the desired privilege calls for. The right to change, from time to time, these requirements was equally unquestionable, as was also the right of each State to maintain its own standard, and to insist on ascertaining for itself, in its own way, without regard to what any other State had done or might do, the qualification of each and every applicant. The acceptance by one State as satisfactory the standard and the examinations of another is merely a courtesy extended, it cannot be claimed as a right. The constitutional provision that the citizens of each State shall be entitled to all the privileges and immunities of citizens in the several States, does not mean that a citizen of the State of Indiana who comes to the State of New Jersey brings with him into this State the privileges and immunities which he enjoyed as a citizen of the former State, but rather that upon his arrival here in this State he at once becomes possessed of all the privileges and immunities which pertain to citizenship of this State. The doctor referred to, in support of this view, the readiness with which a divorce could be obtained, for instance, in South Dakota ; but a citizen of that place coming to reside in New

Jersey could not demand from the New Jersey courts a like divorce.

He next referred to the preliminary education clause of the New Jersey Dental Law. It calls for a preliminary education equal to that furnished by the common schools of this State. It has been held that this means an education equal to that ordinarily provided by the High Schools of the State. This, he is inclined to think, is an error. The Constitution of the State requires the legislature to provide for the maintenance and support of a thorough and efficient system of free public schools for the instruction of all children in this State between the ages of five and eighteen years. It is manifestly impossible to provide for every child in the State a High School education, to attempt to do so would at once break down the entire system; the wealthier districts and the larger cities have these schools as part of their peculiar advantages, not as constitutional requirements, but rather through the exercise by the legislature of a power therein existing beyond the constitutional obligation. He therefore thought, and quoted judicial decisions in support of his view, that the educational requirement of the dental law was one equal to that of the common schools, and that graduation from a high school is not a necessary qualification to entitle a person to an examination for a license to practice dentistry in this State.

While this brief extract gives the gist of his remarks, it is impossible in the space at my disposal to do full justice to such a well written paper. The points touched upon are, at this time especially, highly important; and his evidences and his conclusions are worthy of close and careful consideration. This cannot be given until it is published in full.

Dr. G. Carleton Brown, of Elizabeth, N. J., who led in the discussion of this paper, questioned very much Dr. Osmun's suggestion that a common school education, as that term was used in the dental law, did not refer to a high school. He stated that it was the understanding of those who framed the law that it called for a qualification equal to that of a graduate of a four year high school course, and was so understood by the superintendent of public instruction. Referring to the New Jersey State Board of Examination resigning from the National Board, he said he did not see how they could with honor do otherwise and still maintain their present high standard. It was understood that all State Boards having membership in the National body accepted without question the colleges recommended by that body, many of which were contented with a preliminary education far below that called for by the New Jersey Board. To continue membership and refuse to recognize the standard adopted by the National Board was not consistent with his ideas of honor; to lower the standard of New Jersey to that of the National Board would be a step backward, would be to lose much that they had been so long striving for, and inadvisable. The advantages of association with the National Body, great as they undoubtedly are, were not, in his judgment, sufficient to balance the loss of position and prestige the State had so well earned.

The discussion was an earnest one, mainly centering upon local matters. To many the resignation from the National Board of Dental Examiners, notwithstanding Dr. Brown's statements, was thought to be a disadvantage to the State, and later a resolution was adopted asking the State Board to recall their resignation (it being understood that it had not been as yet accepted by the National Body) and to continue to work with them, hoping that by so doing they might be instrumental in inducing other State Boards to, as soon as practicable, bring their standards to a uniform requirement of a full high school course.

.The Friday morning session, July 20th, was taken up with society business, the most important being the election of officers, which resulted as follows:—President, Dr. F. Edsall Riley, of Newark; Vice-President, Dr. William L. Fish, of Newark; Secretary, Dr. Charles A. Meeker, of Newark; Treasurer, Dr. Henry A. Hull, of New Brunswick.

Dr. Meeker read, during the session, an interesting sketch of his twenty-five years' stewardship as Secretary of the Society. He has been an earnest and faithful officer, and much of the success of the Society and its more notable features are due to his tireless efforts in its behalf.

The attendance, especially of Thursday, was unusually large, and largely composed of young men; in comparison with other years, visitors were notably absent, probably due to the recent meeting of the National Association at Point Comfort, and the excessively oppressive weather. The addition of new members made an encouragingly long list.—W. H. T.

A NEW DENTAL SOCIETY.

The practicing dentists in the seven lower counties of the State of New Jersey have met and perfected an organization, called *The Southern Dental Society of New Jersey.*

Monthly meetings have been held during the past year, and the future of the new society is exceedingly promising. All the twenty-three members participate in the discussions and papers, and take an active personal interest in its welfare.

The officers consist of—President, Dr. J. E. Duffield, of Camden; Vice-President, Dr. O. E. Peck, of Bridgeton; Recording Secretary, Dr. A. K. Wood, of Camden; Corresponding Secretary, Dr. W. W. Crate, of Camden; Treasurer, Dr. Mary A. Morrison, of Salem. Executive Committee—Drs. A. Irwin, chairman, of Camden; J. G. Halsey, Sweedsboro; C. H. Tuttle, E. E. Bower, A. B. Dewees, Camden; J. F. Lummis, Bridgeton, N. J.

OBITUARY NOTICES.

E. HENRY NEALL, D. D. S.

On Sunday morning, July 8th, there died one of Philadelphia's well known dentists, Dr. E. Henry Neall, in the 63rd year of his age, at his late residence, 114 E. Washington Lane, Germantown.

Dr. Neall studied the art of dentistry in the office of his father, Dr. Elijah H. Neall, a pioneer in the profession. His specialty was the carving and baking of block teeth, and he was recognized as an expert along that line.

As late as 1899 he gave demonstrations in that difficult dental branch, before the students of the Medico-Chirurgical College.

Practicing long before a college diploma was thought necessary, Dr. Neall, nevertheless, recognizing the advantage of possessing the same, matriculated in the Pennsylvania College of Dental Surgery, from which he graduated in 1868.

Many little devices and labor saving tools, in connection with his beloved profession, can be traced to his ingenuity and fertile brain. He was ever active in dental society work, and was a member of the old Pennsylvania Society, the Odontological Society, and the Pennsylvania State Dental Society.

Besides this, he gave of his services at frequent intervals to the dental students, being upon the clinical staff of both the University of Pennsylvania and the Medico-Chirurgical College.

Dr. Neall was a Christian gentleman in the fullest sense of the word. He was a member of Calvary P. E. Church, Germantown, and an earnest worker in the Brotherhood of St. Andrew.

During the war, he went to the front with the Christian Commission to relieve the sick and suffering soldiers.

Dr. Neall was twice married, his first wife being Miss Elizabeth Enyard Montgomery, of Philadelphia; his second wife, formerly Miss Emily L. White, also of Philadelphia, survives him.

He leaves six children by his first wife:—Dr. Walter H. Neall, Mrs. W. K. Matsinger, Robert M. Neall, Mrs. Charles J. Pilling, Benjamin T. Neall, and Miss Edith Neall.

DIED, JULY 2ND, 1900—AUGUSTUS HAVERSTICK.

We are pained to announce the death, on July 2nd, of Augustus Haverstick, for many years connected with the dental business, and associated with the publishers of THE DENTAL OFFICE AND LABORATORY.

Mr. Haverstick for more than thirty years traveled in the Middle States, meeting and drawing the confidence and favor of the dental profession, and during his business career made numerous warm friends, who mourn his loss.

He was among the pioneer travelers, introducing in parts the now largely extended system of bringing supplies convenient to the practitioners.

An upright, strict and earnest business man, he earned a prominent position in the trade, and during his active years stood foremost in his line.

We tender a tribute to his memory in sorrow for the too early closing of his life work.

PRACTICAL PLACE.

TO REMOVE GUM TISSUE FROM A TOOTH CAVITY.

A difficulty which is frequently met with is the intrusion of the gum into the cervical edge of the cavity, so as to render difficult and very painful the adjustment of the rubber; the excess of gum may be burnt away with a minimum of pain by means of sodium of ethylate.—ROBERTSON, in *Dental Record*.

BEAR THIS IN MIND.

If you are about to examine a septic case or one where you suspect syphilis, wash your hands in vinegar or dilute acetic acid, and you will soon discover by the smarting any little scratches or abrasions in your skin which might become the starting point of infection.—*Surgical and Dental News.*

TANNOFORM CEMENT.

A mixture of tannoform and formaldehyde has been used with great success in more than 1,000 cases, for capping amputated pulps. It is strongly antiseptic, easily applicable, and becomes immediately hard. It is also of good service in pulpitis, but it discolors the teeth.—DZIERZAWSKI, in Ref. from D. M. J. Z.

SENSITIVE DENTINE.

Dr. C. B. Rohland, of Illinois, says:—"By adding just sufficient carbolic crystals to cocaine hydrochlorate, and rubbing together with a spatula until the cocaine is dissolved, a thick syrup is obtained, which is escharotic, antiseptic, obtundent. With this he often obtains most gratifying results in the treatment of sensitive dentine in cavities of decay. It should be used with the rubber dam, dryness to the verge of desiccation secured, applied warm, and treated in situ with the hot-air syringe, so hot as can be borne, and again dried before excavating. If one application fails to give the desired result, two almost invariably will be effective."—*Dental Brief.*

EUCAINE.

Eucaine provokes hyperemia at the point of application, and should be used with caution when hemorrhage is to be feared. Five minims of a ten per cent. solution are sufficient to inject into the gum for the painless extraction of teeth.—WOLFF, in *Dental Digest.*

PREVENTION OF IRREGULARITY.

When deciduous teeth are lost before the permanent teeth are ready to erupt, to prevent the adjacent teeth from traveling, or tipping, insert a vulcanite plate to occupy the space of the lost tooth, cutting it away from time to time to accommodate the erupting tooth.—*Dominion Dental Journal.*

DEEP CAVITIES IN THE PERMANENT TEETH OF YOUNG CHILDREN.

Excavate conservatively, removing all the non-sensitive tissue, with the assurance that if properly aided nature will recalcify all softened dentine when sensitive living fibre remains. As these fibres were the original tooth-forming organs, so they are still able to rebuild the broken-down dentine under favorable conditions.—S. S. STOWELL, in *Dental Cosmos.*

QUININE SULPHATE FOR SENSITIVE DENTINE.

A very nervous lady had tried five different dentists in Paris to have her teeth filled, but the dentine was so highly sensitive that she could not submit to the operation. Schwarz gave her three powders of quinine, eight grains each, to be taken at intervals of forty-eight hours. The sensitiveness of the dentine was entirely lost, and he filled three cavities at the first sitting.—*L'Odontologie.*

PASTILLES FOR FETOR OF THE BREATH.

This formula is given in the *Journal de Med. de Paris.*

℞ Powdered coffee, 45 parts.
Vegetable charcoal.
Powdered sugar.
Vanilla, of each, 15 parts.
Mucilage of gum arabic, a sufficiency.

M. Divide into pastilles of fifteen grains each. Five or six to be chewed daily.—*N. Y. Med. Jour.*

POTASSIUM CHLORATE FOR BURNS.

The immediate application of a cold saturated solution of potassium chlorate has an excellent effect on burns, relieving the pain rapidly. Superficial burns may be permanently dressed with a solution of salt; but deeper wounds should be treated with full antiseptic precautions.—*Semaine Med.*

A SUBSTITUTE FOR THE DIAMOND DISK.

A small disk of thin copper, used with water or oil *and fine emery*, will cut as perfectly as a diamond disk, and even more quickly.—DR. ROBERTS, in *International Dental Journal.*

pages 161-162
missing } [illegible]

Q. What indications are furnished by the gums during the existence of such predispositions?

A. There is a morbid sensibility, foulness of the breath, bleeding from the most trifling causes, a pale bluish appearance of the gums, a puffiness or swollen condition of the points between the teeth, and a sloughing or death of a part of this tissue, the dead part separating from the living part as is noticed in all ulcerative processes.

Q. Are not these effects likely to be produced by the administration of mercury?

A. They are, when the person is highly susceptible to the influences of mercury, or when this agent is administered in large doses or quantities to persons of different constitutions.

Q. Is this disposition against the use of mercury easily noticed?

A. Yes. Sometimes a single dose will produce a salivation, a constant spitting, or an excessive flow of saliva, accompanied with a coppery taste of it, and the excessive loosening of the teeth, with the added condition of inflammation of the gums. Some persons are so susceptible to the influences of this drug that the small quantity of it used to color the rubber employed for the plate in artificial teeth affects them and gives them what is termed "Rubber sore mouth."

Q. What is sometimes the effect of this mercurial diathesis?

A. The effect is sometimes so disastrous that all of the teeth are lost from excessive looseness.

Q. Do the gums ever bleed periodically or at stated times?

A. It has been observed they are very likely to do so, in females during the catamenial period.

Q. Is this spongy condition of the gums noticed in scrofulous persons the result of caries of the bone?

A. Not always; such a condition of the gums may proceed from decayed teeth.

Q. What other indications proceed from the gums?

A. It has been noticed that in the majority of consumptive patients the gum margins present a deeper vermilion color.

Q. What will sometimes affect the condition of the gums?

A. A change of residence from a dry to a damp climate will often affect their condition, producing a tingidness and great vascularity of this tissue. In such climates, in England, Ireland, France and Germany many persons lose their teeth early from the malarial state of the climate producing low

LIBRARY
COLLEGE OF DENTISTRY
UNIVERSITY OF CALIFORNIA
SAN FRANCISCO

fevers, enfeebling the digestive organs, rheumatism, languor and general debility.

Q. What are the causes of inflammation of the gums?

A. The causes of inflammation have been traced to local irritation and to constitutional effects.

Q. Has it been noticed how these tendencies act?

A. Every constitution has its peculiar tendency, the one being more favorably disposed to disease than the other, the healthy constitution being less disposed to disease than the unhealthy. Any derangement of the digestive organs in the patient with a tendency to certain forms of diseased action, particularly those of the gums, will result in an inflammation of this tissue. Any local irritant which might only give rise to a slight inflammation in one person would produce a sponginess or turgidity of the whole structure in another.

Q. Is this tendency noticed in bodily or mental infirmity?

A. In both. Persons suffering from any enfeeblement of the body or from excessive grief or melancholy, or any cause which may enervate the vital forces, would be fit subjects for the inflammation, sponginess or ulceration of the gums.

Q. What is the treatment for inflammation of the gums?

A. The first thing is to see if there are any local causes to produce such inflammation, and to remove them. All substances which act as mechanical irritants must be removed, such as loose, useless teeth and roots and particles of tartar. Should there be any necrosed portions of the process, these should be removed with sharp burs in the dental engine and the burred surfaces left smooth. After this is done, or after the tartar is removed, should there be no necrosed bone, the gums should be well scarified and the puffy parts depleted, which may be almost painlessly done with small, sharp, curved blade scissors, and they should be permitted and encouraged to bleed as much as possible. When the bleeding has ceased the hypertrophied parts of the gums which have been snipped off with the scissors may be bathed with pure iodide of zinc applied with a swab of cotton; the tonic and astringent nature of this drug going far to arrest the bleeding and cure the condition. Should the gums still show a disposition to exude pus after the above treatment, the more heroic treatment of touching them carefully with nitrate of silver or the chloride of zinc may be resorted to. These remedies should not be applied in full strength but diluted, and with a camel hair pencil.

Q. Do the gums inflame merely from mechanical causes?

A. No. When mercury is administered internally to the point of salivation it gives rise to what has been termed mercurial inflammation of the gums. The indication of mercurial inflammation of the gums consists of an increased redness of this tissue, with puffiness or tumefaction around the edges which surround the teeth. The redness frequently assumes a bluish color while the mucous membrane which joins the gum is pale pink—sometimes almost white. These conditions lead to an increased flow of saliva, a strong coppery or metallic taste in the mouth, a general soreness of the gums and teeth. This inflammation frequently attacks the roof of the mouth as well as the fauces, the cheeks, the salivary glands and the tongue, which latter assumes a deep red color along its edges, together with a fearfully offensive breath. The gums increase in redness, the saliva becomes viscid, frothy or stringy, and flows into the mouth in such large quantities as to be with difficulty retained, and every movement of the jaws is attended with pain. The peridental and alveolo-dental membranes are thickened and the teeth so loosened in their sockets as to be almost ready to drop out. There is often a sloughing of the gums with necrosis along their edges. The administration of mercury is alway, more or less, attended with these baneful results, and in some temperaments is so contra-indicated as to prevent its employment, even in the minutest doses.

Q. Are there any means of counteracting the action of mercury?

A. It is almost impossible to counteract its effects. Life must be preserved at the expense of the teeth; but in mild cases, where its effects have not progressed as far as we have related it may be gradually eliminated from the system. If the gum remains spongy, the bowels should be moved with Seidlitz powders or other cooling cathartics. The mouth should be gargled several times a day with mild astringent washes, to which a little laudanum may be added, and the sufferer should refrain from farinaceous food, such as beans, corn, hot cakes and the like. The edges of the tumefied gums should be painted with tincture of iodine, or this may be used half and half as a mouthwash with water. Chlorate of potash is another remedy of great service in these cases in the strength of one drachm to the ounce of water. For internal administration, ten grains of chlorate of potash to the half ounce of water may be taken four or five times a day. When the tumefaction is very great Dr. Garretson recommends the following for an adult:

℞.	Potasse chloras,	℥ ss.
	Sodae boras,	
	Alumen pulv., a a	ʒ ij.
	Potass permang.,	grs. xxv.
	Aqua cologn,	℥ ss.
	Tinct. cinchonae,	℥ ij.
	Tinct. myrrhae,	℥ j.
	Infus. quercus (fort.),	℥ iv.—M.

Sig.—Gargle the mouth as circumstances may require or according to age.

Sometimes the iodide of potassium may be given in doses of three to five grains three times a day in some bitter infusion.

When the action of the medicine has subsided and the disease assumes a chronic form the gums should be freely scarified and made to bleed as profusely as possible. This operation should be continued for two or three successive days, when astringent washes and gargles should be used. Should any of the teeth have lost their vitality or become excessively loosened they should be removed, as to let them remain in this condition would subserve no good purpose to the patient and only tend to keep up the irritation we desire to suppress.

The dreadful fetor emanating from the ulcerated surfaces may in a great measure be corrected by the use of a gargle composed of three drachms of charcoal suspended by agitation in a tumbler of water, retaining this for a short time in the mouth before it is ejected. Should the charcoal adhere to the gums or teeth, the mouth may be rinsed with warm water to dislodge them.

(To be Continued.)

REPORT OF THE FOREIGN RELATIONS COMMITTEE OF THE NATIONAL ASSOCIATION OF DENTAL FACULTIES.

(Reported and adopted at Old Point Comfort, Va., July 14, 1900.)

DURING the past year the work of the Foreign Relations Committee has been materially extended. Advisory boards in most foreign countries have been provided for, and appointments made to fill them as fast as sufficiently definite information to enable the committee to do this properly could be obtained. Pamphlets containing an exposition of the work and the aims of the National Association of Dental Faculties have been printed and circulated in foreign countries, and a number of circulars of information for members of our foreign advisory boards have been printed and mailed to them. In addition, as directed by the association at its last meeting, a pamphlet containing digests of the reports made at that meeting has been printed and mailed to each member of the association, and to other interested members of the profession in America and abroad.

All this has involved considerable expense for printing and postage, but we believe that it has been a wise expenditure of money, as by its means the dental profession of the world has been made aware of the existence of an association of the regular and recognized dental schools of America which is devoted to the advancement of the cause of dental education and to the elevation of the status of dentistry among all nations.

It is unfortunately the fact that, because of the lack of uniformity in the educational systems of the different states, and the absence of any general supervisory authority on the part of the national government, under some unwise local legislation it has been possible for irresponsible, unqualified, and unscrupulous men to secure charters for institutions empowered to grant degrees, and under such authority to issue, for a consideration, irregular and fraudulent diplomas. This traffic has principally been with men in foreign countries, who, primarily the guilty ones, have sought to obtain academic honors without the labor necessary honestly to acquire them. As these institutions have been conducted under pretentious names, it was formerly impossible for foreigners who had no intimate acquaintance with American educational affairs to distinguish between the regular and the irregular schools. The organization of this association has established a criterion by which they may be judged, only those owning allegiance to the National Association of Dental Faculties being recognized.

It is unfortunate that the professional situation in America has not in past years been better comprehended in Europe. All our schools have been held responsible for the vile work of the fraudulent ones,—nominally located in this country, but chiefly supported by unprofessional men from abroad. There has even been a grave misapprehension of the objects of this association, and the work of the Foreign Relations Committee has in some instances been totally misconstrued. All of us are aware that while some of the very best and ablest American representatives have located in foreign countries, and to whose professional career we can point with pride, it is unfortunately the case that some Americans of a different professional reputation have gone abroad and have indulged in practices as offensive to our foreign *confreres* as they are to reputable American practitioners. There are many more unworthy foreigners who have legitimately or illegitimately become possessed of an American degree, and who, without warrant of right, claim the title of "American dentist."

The belief is prevalent in certain foreign professional circles that it is the aim of the National Association and its Foreign Relations Committee to obtain for all such persons professional recognition, and to demand the acceptance of their American degree by the governments of foreign countries. It is but proper that we should in the most authoritative manner deny any aspirations of the kind. This association has not in the remotest manner contemplated any interference with or protest against the laws or regulations governing the practice of dentistry in any foreign country. It has not primarily been the object of either the National Association or its Foreign Relations Committee to attempt to secure for the American dental degree any legal recognition as a qualification for foreign practice. It is not usual in the American states, which have legal professional regulations, to receive the diplomas of any foreign professional school as a qualification for practice, and we cannot consistently ask that which we refuse to others.

It seems but proper that we should publicly avow the reasons that have prompted the better colleges to form this association of schools, and to appoint a committee charged with the duty of harmonizing our relations with the dental profession in other lands. We seek for the distinctive American dental diploma, nothing more than the consideration which its merits demand. If its reputation has been debased by the circulation of counterfeit diplomas, it is something for which we are in no way responsible. In the formative educational period, when dental schools existed nowhere save in America, and when even dentistry itself was undefined, empirical, tentative, with no distinctive line of practice and no clearly prescribed curriculum of study, the newly adopted degree may have been conferred in some instances on insufficient acquirements. The experiment of establishing a special dental educational course of study, and thus laying the foundation for the broad profession which exists in all civilized countries to-day, was first tried in America, and here tested for the whole world. There were no precedents for our guidance, and no earlier successes or failures to stand as landmarks. We were the absolute pioneers, and it would be little wonder if we made some errors.

Since that day other countries have drawn professional lines, and marked out, each for itself, a distinctive course of procedure. Each of these somewhat varies from the others, and perhaps all from that originally established in America. If dentistry is to be accepted as a profession at all, or as a distinct branch of a great mother profession, it must be broader than is any state; it cannot be confined by any bourne, nor limited by mountains, rivers, or oceans. There should be no American, English, German, or French dental profession, except as each is a part of one undivided whole. Realizing all this, the National Association of Dental Faculties was organized for, and has been constantly laboring to attain, these definite purposes:

First. To establish a broad and generally accepted curriculum of dental study, and by the combination of all the better dental schools of America to bring each up to a uniform standard of excellence.

Second. To establish a clear line of demarkation between the regular and the irregular schools, and to force out of existence the latter.

Third. Gradually to raise the standard of preliminary education until none but such as have the general erudition that should distinguish a professional man can be accepted in American dental colleges.

These were the principal objects in view, and in the attainment of them success has been secured exceeding the most sanguine expectations of the founders of the movement.

In the development of its plans the association met with many obstacles, and found itself laboring under great embarrassments. One of the chief of these was the lack of information concerning professional affairs in foreign countries. The association decided, so far as was in its power, to co-operate with the worthy dentists of other countries in the laying down of certain broad principles which must be the foundation upon which any true professional practice could rest. Any international co-operation must be based upon a complete knowledge by each of the methods and aims of the others. There can be no concurrent effort without mutual comprehension and intelligence.

Another perplexity was found in the fact that in establishing the preliminary qualifications for matriculation in American colleges there was no rule by which to judge of the value of certificates presented by foreign students. After completing the course of some foreign school, a student, who perhaps spoke only a strange language, sometimes desired to conclude his studies by taking as much of the American course as would enable him to finish it, and he demanded of some American college advanced standing of one or more years. His certificates were in a foreign tongue, and in some instances were found either forged or not that which they were represented to be.

In this emergency, at the earnest request of certain American dentists practicing in foreign countries, who had been scandalized by the acceptance in America of students with improper certificates, a committee, to be called the "Committee on Foreign Relations," was appointed, and was charged with certain definite duties:

First. It was to be in all things subordinate and subservient to the National Association of Dental Faculties, to which body it must make a full report each year.

Second. It was empowered to appoint advisory boards of not more than three members in each foreign country having any professional relations with America, whose reports concerning foreign qualifications might form a basis for action in this country.

Third. It was to have jurisdiction in all foreign educational questions affecting American dental colleges.

Fourth. It was to obtain definite information concerning dental regulations and laws in foreign countries; to learn what were the curriculum and requirements of all foreign dental schools, with the view of determining what value should, under American laws and regulations, be given their certificates of study, either as a qualification for dental practice in America or for admission to advanced standing in American dental colleges.

Fifth. It was charged with the duty of ferreting out institutions engaged in the granting of irregular degrees or degrees irregularly, and instituting measures for their suppression.

In compliance with the first enumerated duty your committee makes this report of what it has done during the past year, and appends the recommendations for future action which its experience leads it to believe advisable. It has earnestly striven to carry out what its members believed to be the wishes of this association, and it has had no policy of its own to inaugurate or attempt to enforce. It has in all things been governed by what it believed to be the spirit of its instructions.

Concerning the second business with which it was charged, your committee begs to report that it has divided the various countries of both the Eastern and Western Hemispheres into convenient groups, and has appointed boards for each, so far as the information obtainable has warranted. In making such appointments it has deemed the following qualifications essential:

First. The appointee should be a regular and reputable dentist, possessing the legal qualifications of the country which he represents.

Second. He must be a graduate of some reputable American dental school, or possess an acquaintance with the curricula of American schools, and be familiar with American dental professional methods. The list of such appointments is appended for the approval of this association.

In the discharge of the third duty imposed upon us your committee has met with great embarrassments. At the very outset colleges, members of this association, appealed to us to know what consideration should be given to certificates showing that proposed students had taken the full course in schools located in Japan and Mexico, which purported to teach the whole dental curriculum. Your committee could not learn that any schools giving a course in dentistry that could be accepted as an equivalent for any part of that demanded by this association existed in either country. They therefore ruled that students from either could only be accepted as members of the freshman class of American dental colleges, and only then if they complied with the rules of the association so far as preliminary education and a knowledge of the English language are concerned. This ruling was cheerfully accepted by the schools that had raised the question, and we present it as an encouraging proof of the loyalty and anxious desire for a high standard that exists among the recognized dental colleges of America.

But the discussion of this raised the question of the consideration that should be given to the certificates of study from any foreign dental school. Our rules provide that no credit shall be given to certificates from any American dental school whose curriculum and regulations have not received the formal approval of this association. Could we, in the name of the National

Association of Dental Faculties, approve the giving of advanced standing to students from the schools of other countries that had not the same stamp of regularity? That is, could we extend to foreign and unknown dental teaching institutions privileges that were positively forbidden to American schools? And yet the responsibility of deciding this question had been thrust upon us by this association, and we could not evade the obligation. It took but a short time to arrive at the inevitable conclusion that we could not approve the giving of advanced standing to graduates or undergraduates of any foreign dental school whatever until such school had received the formal endorsement of this body.

Fortunately, few of these questions arose in time to affect any student for the term of 1899-1900. We informed the colleges, presenting the cases that the matter would be referred to this annual meeting, and the committee is prepared to offer certain recommendations for the recognition of foreign schools, based upon such knowledge as we have been able to obtain. The whole matter is referred to this body for final adjustment.

In the discharge of the fourth duty that devolved upon us, your committee is in possession of a very voluminous mass of correspondence and reports, which it has earnestly labored to reduce to some system. The advisory boards appointed have, in a considerable number of instances, forwarded as full information concerning dental schools and the regulations governing dental practice in the countries represented by them as could be obtained, and it is upon such reports that the recommendations of your committee are wholly based. How much of them shall be given to the profession of America by publication must be decided by the association. It would be quite impossible to print the great mass of correspondence unless a large volume should be devoted to that purpose.

Under the fifth head, your committee begs leave to report that a great deal has been accomplished. The same legal counsel employed last year has been retained, and the same general course has been pursued. It is probable that more fraudulent diplomas have been sold in foreign countries during the past year than ever before. This is due to the fact that those who have been carrying on the traffic realize that, because of activity in their prosecution, the time for accountability is near at hand, and they are striving to make the most of the present opportunity.

It is urged by foreigners that this business should be summarily stopped. Such people little know the difficulties in the way. In the first place, the traffic is mostly with foreigners. As their illegitimate diplomas are wholly worthless in this country, no State Board of Examiners recognizing them in any way, those who are engaged in the business carefully cover their tracks, and no responsible man can be located. Attempts to entrap them by means of decoy letters have failed, some such having crossed the ocean a number of times without delivery, being forwarded from one of their foreign agents through whom the nefarious business is carried on to another, until finally returned to the writer by the post-office authorities. Fictitious names are signed to the pretended diplomas, so that it has been found almost impossible to fix the guilt upon any person. Our friends in foreign countries have contented themselves with bitter reproaches against American colleges generally, without forwarding any testimony that would assist in the discovery of the guilty ones. The fraudulent institutions could not by foreigners be distinguished from the regular colleges, for they were in possession of charters regularly granted under a vicious law of the state of Illinois, whose entire repeal it had been found impossible to secure, because the interests of legitimate enterprises were inextricably bound up with the illegitimate ones.

Your committee early discovered that working alone it could accomplish little. The Board of Health of the state of Illinois was taking the matter up, and they possessed advantages for the prosecution of the lawbreakers which were not within our reach. We have therefore contented ourselves with co-operating with that board in every way possible, and our counsel has been instructed to offer them any assistance within our power. As a consequence we have great pleasure in reporting that, acting under the United States law, which forbids the use of the mails for fraudulent purposes, the worst of these offenders have finally been apprehended and committed to jail in default of the heavy bail that was demanded. What is of more importance, if possible, the United States mails are closed against the transmission of their correspondence, and letters to or from them are promptly sequestrated.

The greatest offender was last year named in this report as "The Independent Medical College of Chicago." We secured the annulment of the charter of this affair, but in a very short time we found that the same men were yet engaged in the business under the name of "The Cosmopolitan Medical College." They had offered for sale no less than thirty-six different diplomas in all the branches of science and art, and since the forfeiture of the charter under which they first worked it is believed they have sold more than a thousand fraudulent diplomas, at prices varying from ten to five hundred dollars each. Proof sufficient to secure the cancellation of the first charter was only obtained through the inordinate cupidity of the man who was chiefly responsible. He paid a debt of some thirty dollars due to a stableman, or hostler, by issuing a diploma to him and making him a professional man. The recipient, when he found himself under arrest for attempting practice under it, betrayed the swindler, and we were thus able to fix his guilt.

The late proceedings against this man and his associates have developed the fact that they were in possession of no less than *twenty-four* different charters, all regularly issued under that mischievous Illinois law, which was enacted for beneficent purposes. We have now learned the methods of these men, and it is believed that it will soon be possible to put an entire stop to their villainous traffic, through the imprisonment under the United States postal laws of those engaged in it. Too much credit cannot be given the Board of Health of the state of Illinois for the active part it has taken in the suppression of these miserable pretenders that have so long been bringing discredit upon our legitimate and excellent educational institutions.

In view of the fact that the other work of the Foreign Relations Committee is more than sufficient to engage all its surplus energies, and in further consideration that the work of the suppression of the fraudulent schools is now well in hand and the path for action fully defined, your committee recommends that this work be, for the future, placed in the hands of the Committee on Law, which shall receive the same instructions as those heretofore given the Committee on Foreign Relations.

The progress that this association is making in its efforts to raise the status of professional teaching in our own country, to obtain a better appreciation of American professional affairs in foreign countries, and to maintain steady advancement toward a dental solidarity among all nations is very encouraging to every lover of humanity. It is true that even at home there may in uninformed circles yet be found some remnants of an unworthy professional jealousy, a failure to comprehend the real educational situation, and a tendency to attribute to our teachers motives unworthy any honest man. But the steady, persistent work of this association in elevating the accepted standard just as fast as prudence permits, has wrought a great change in professional sentiment and immeasurably benefited the schools, and through them the profession at large. It only remains for us to continue this good work a few years longer to produce results that will be permanent in their character, and so firmly established as henceforth to be self-sustaining.

REPORT CONCERNING FOREIGN EQUIVALENTS.

Your committee has very carefully considered a great mass of correspondence and many voluminous reports, and begs hereby to submit the conclusions which it has reached. It must not be forgotten that the system of dental instruction in Europe varies very widely from that of our special American dental schools. Instruction separate from that given in the medical schools or universities is very rare, and the practical training which forms a part of our curriculum is usually given by private preceptors.

Your committee does not feel at liberty to recommend the acceptance of an oral and theoretical course as the equivalent for one including practical work. We cannot believe that the certificates of private and irresponsible practitioners can by us be accepted as any part of a college course, and hence we have given them little consideration. It is quite probable that in some instances we have recommended that one year's advanced standing be given the holders of some certificates when further knowledge might show that they should be admitted to our senior classes, but we have thought it wisdom to err, if any mistakes are made, upon the safer side, as future action can readily correct any such errors.

Australia.

A very complete report from the various colonies of Australia and New Zealand has been made by the advisory board appointed for those countries. It would appear that in most of the colonies there is no dental legislation, but Victoria has lately secured a law analogous to that of England, and in Melbourne a dental school has been organized whose curriculum, from the partial syllabus furnished, seems to be a comparatively broad one. The dean of the "Australia College of Dentistry" is an American graduate, and he appears to have the confidence of the dentists of Australia.

Your committee is unable positively to determine whether the school in all respects comes up to our minimum requirements, but this it has directed its chairman definitely to ascertain, after which your committee will be prepared to recommend to this body some proper action. There has also been established in Melbourne, Province of Victoria, the "Dental College and Oral Hospital of Victoria," but your committee is not at the present time in possession of sufficiently definite information to enable it to offer any recommendation concerning it.

In the provinces of Western Australia and Tasmania no dental legislation has been secured.

There is a dental law in New Zealand, and the member of the advisory board from that province has furnished your committee with an abstract of it. There are no dental schools in the province.

Switzerland.

Full reports from this country have been furnished by Dr. Bryan. It is a republic analogous to our own country in some respects, the federal union being composed of separate cantons. There are some excellent universities which offer certain facilities for dental study, but their practical instruction, we believe, cannot be accepted as an equivalent for that offered by American dental colleges. Your committee recommends that holders of the Swiss national diploma be given one year's advanced standing in the schools of this association, but that no consideration be at present extended to holders of the cantonal qualifications.

Spain.

Complete reports have been furnished by members of the advisory board. The Spanish requirements in medicine are very high, but your committee cannot learn that there are any dental schools, or dental departments of universities, whose course of instruction can be accepted as the full equivalent for the instruction given in American dental colleges.

France.

Your committee is aware that separate dental schools exist in France, and its chairman has been in daily expectation of receiving their curriculum of study, but up to this time has been disappointed. Without this exact knowledge the members do not feel themselves justified in recommending any action, for we cannot proceed in so grave a matter upon mere assertions or impressions. As members of your committee will visit France in the immediate future, and will carefully investigate the course of study, we ask that we be given authority to incorporate our recommendations in this report after such investigation shall have been completed.

Germany and Austria.

The dental schools of these countries are departments of the universities, and only university students attend them. The instruction consists of lectures and clinical work given by from one to three dental professors, who lecture upon the different dental subjects. Instruction in chemistry and allied studies is afforded in the School of Philosophy or Science; in anatomy, physiology, etc., in the School of Medicine. No special instruction is given dental students except by the very few dental teachers. The clinical instruction is largely devoted to extraction and oral surgery. The practical work is usually quite limited. There is no obligatory course, but students enter for such lectures as they may choose, paying the fees of each professor separately. There are no obligatory hours for study or lectures.

The mechanical instruction consists of lectures on the principles of mechanics, the practical work being usually done in private laboratories. The examinations have very little resemblance to ours, each teacher asking three questions out of a list of forty approved by government. They are not usually as exhaustive or comprehensive or scrutinizing as ours. The licensing or approving power rests with the "Kultus Ministerium," or department of religion and education. The great majority of dentists in practice are Zahntechnichers,—mechanical dentists,—upon whose work no restrictions are placed, as they are not recognized by the government.

Your committee recommends that students speaking the English language, who have taken the full dental course in German or Austrian universities, be eligible for reception in the junior classes of American dental colleges, provided it be shown that they have had at least two semesters of competent college instruction in practical laboratory and operative work. It further recommends that students speaking the English language who have had at least four semesters of such instruction in operative and prosthetic practical courses, and who shall have finished the dental course in the University of Berlin, or in any German or Austrian dental school whose course of instruction offers a full equivalent, be eligible for admission to the senior classes of accepted American dental colleges.

Italy.

In Italy the practice of dentistry was long without special restrictions. Then an attendance upon lectures in a medical school was required, and a dental diploma was issued. In 1892 a law was passed which required dentists to obtain a medical diploma. This was not enforced until 1898, when a movement against foreign practitioners was inaugurated. They appealed to the courts and carried the matter to the supreme court, which decided that those in practice previous to 1888 had rights which could not be abrogated. At present the law of 1892 is in force, and this requires a medical diploma for the practice of dentistry and phlebotomy.

There are, we believe, no schools in Italy which have courses that can be accepted as equivalent to those of our American dental schools. The instruction given in the medical schools your committee believes to be too exclusively general in its character to form an acceptable course in dentistry for American students.

Mexico.

There is a medical school in the City of Mexico which purports to give dental instruction. Your committee cannot learn that it is of such a character as will enable it to be accepted as the equivalent for a course in an American college.

Japan.

There is one dental school in Japan,—that of Dr. Takayama, in Tokio. It confers no degree, but gives a certificate which entitles the holder to government examination, the same as if he had studied with some practicing dentist. As the instruction is personal and the school is quite irresponsible, your committee believes that no consideration can be given to it.

Holland and Belgium.

In these countries the title of dentist is obtained by passing a practical examination in the theory and practice of dentistry. There are no separate dental schools, and we are not sufficiently informed of the comprehensiveness of the syllabi of the universities to offer any recommendations concerning them.

Great Britain.

There can be no questioning the fact that England has some excellent dental schools. The only embarrassing circumstance in the determination of their status relative to ours lies in the great difference between the educational systems of the two countries. Undoubtedly they place greater stress upon preliminary educational requirements than do we, but your committee is of the opinion that our practical instruction is superior. Originally, we believe, there was little instruction given in prosthetic work during the term of attendance upon hospital lectures. Students were supposed to come to the college for didactic instruction, the practical part having been previously communicated by a preceptor. It should be comprehended that English dentists frequently employ a mechanic, who is not required to possess any special educational qualifications, the registered dentist mainly confining his attention to the operations of the surgery or operating room.

In this country we believe the practical work of the laboratory should form a part of the college course, and we do not graduate a student until he shall have satisfactorily completed the whole curriculum within the college walls. We are under the impression that the English system is undergoing a change in this respect, and that practical laboratory work will soon form a part of the obligatory college course. We recommend that all students who shall have finished the complete course in any recognized English, Irish, or Scotch dental school or hospital shall be eligible for reception as senior students in American dental colleges upon proof of their having taken as a part of such course two years of instruction in a properly equipped dental laboratory and dental infirmary connected or affiliated with such dental school or hospital, and which requires the successful completion of the work deemed essential by recognized American schools, as formulated in the minimum requirements for foreign dental schools accompanying this report. We further recommend that for the present no consideration be given to partial courses in any of the dental schools of Great Britain.

Sweden.

Very complete reports have been furnished by the chairman of the advisory board, Dr. Forberg.

The country has one dental school, which is the dental department of the "Carolina Medico-Chirurgical Institute of Stockholm." Instruction is given by five professors of the medical department, and there are three dental professors, occupying respectively the chairs of dental surgery, operative dentistry, and dental prosthetics and orthodontia. From the assurances given by Dr. Forberg, your committee believes that its graduates should be permitted to enter the second-year class of recognized American dental colleges, provided they shall have complied with our requirements concerning mechanical laboratory work.

Your committee has not sufficient knowledge concerning this school to warrant further recommendations at present.

Canada.

In the Dominion of Canada there is but one school which demands consideration, and that is a member of this body. Yet the educational systems of the two countries, especially in professional matters, are so different as to engender continual embarrassments. Canada being a foreign country, your committee has felt itself bound in duty to place it in the list of those countries whose relations with us must be taken into consideration. The dental educational system of Ontario approaches more nearly that of England than that of America. It has an analogous system of indentures which the dental student must sign, and private preceptorship forms a portion of its obligatory instruction.

This is directly at variance with our system, which accepts no tutorship by irresponsible parties. The Dental law of Ontario forbids the entrance upon practice of any one who has not taken his final course of instruction in the Royal College of Dental Surgeons of Ontario. We believe that this principle is the correct one, and that the same rule should be made applicable in the United States, and that here, as there, no foreign qualification should be sufficient for registration in the various States of America. But the membership of this foreign school in our association presents an embarrassment which for the present seems insuperable, and your committee therefore has no recommendation to make, but leaves the matter for future consideration in the hope that some code of international agreement may be devised which will give to the graduates of America's recognized colleges who desire to practice in Canada the same privileges extended to the alumni of the excellent Ontario dental college.

Concerning other foreign countries, your committee is not in possession of sufficiently definite information to warrant any action whatever. We have no knowledge of the existence of any courses of instruction which can be accepted as an equivalent for courses in the institutions having membership in this body, and therefore advanced standing in our schools cannot in justice to our own students be granted, save in the instances above enumerated. The committee will gladly make use of any further information which may be furnished them, and will, in the furtherance of the duty with which they are charged by this association, embody such knowledge in future reports.

Report Concerning the Minimum Requirements to be Demanded by the National Association of Dental Faculties for the Recognition of Foreign Dental Schools whose Students Desire Advanced Standing in the Colleges Belonging to the Association.

1. The college must require of matriculants a preliminary education which is the full equivalent of that demanded by the schools of this association.

2. The college must demand of students full attendance upon at least three full annual courses (not semesters) of lectures of not less than seven calendar months each, in separate years, covering all the studies proper to a full dental curriculum.

3. The college must possess a bacteriological laboratory, with sufficient of equipment for instruction in a competent course in bacteriology, which must form a part of its curriculum of study.

4. The same must be required in chemistry, histology, and pathology.

5. There must be a technic laboratory in which shall be taught the proper manipulations for the insertion of all kinds of fillings for teeth, the preparation and filling of the roots of teeth, the tempering and shaping of instruments, the drawing of wire and tubing for cases in orthodontia, and the cutting of bolts and nuts.

6. There must be prosthetic laboratories sufficiently equipped for teaching all kinds of prosthetic work, and the construction of all the approved prosthetic appliances.

7. There must be a sufficiently equipped laboratory for instruction in making crowns and bridges, and the construction of appliances used in orthodontia.

8. There must be a properly equipped infirmary or surgery for the reception of patients, upon whom each and every student shall be required individually to perform all and enough of the operations necessary in dental practice thoroughly to qualify him for the successful pursuance of his profession.

LIBRARY
COLLEGE OF DENTISTRY
UNIVERSITY OF [illegible]

9. Complete records of the work done by each student, of his attainments at sufficient and full examination in each subject of the curriculum of study, of his attendance and deportment during the course, must be permanently kept.

10. No credit must be allowed for any work not done under the immediate supervision of instructors connected with or especially approved by the college, and who are in direct affiliation with the faculty.

The following is a list of the countries for which advisory boards have been designated, and the appointments and nominations so far as made :

COUNTRY.	NAME.	COLLEGE.	POST OFFICE ADDRESS.
Great Britain.	Wm. Mitchell, D. D. S.	Univ. of Michigan.	39 Upper Brook st., London, Eng.
" "	W. E. Royce, D.D.S.	Phila. Dental College.	2 Lonsdale Gardens, Tunbridge Wells, Eng.
" "	B. J. Bonnell.	....	94 Cornwall Gardens, So. Kensington, London.
Holland and Belgium.	J. E. Grevers, D.D.S.	....	13 Oude Turfmarkt, Amsterdam, Holland.
" "	Ed. Rosenthal, D.D.S.	Harvard University.	19 Boul. du Regent, Brussels, Belgium.
" "	C. Van der Hoeven, D.D.S.	....	Der Haag.
Denmark, Swe. & Nor'y.	Elof Forberg, D.D.S.	Phila. Dental College.	Sturegatan 24, Stockholm, Sweden.
" " "	S. S. Andersen, D.D.S.	Univ. Pennsylvania.	Christiania, Norway.
" " "	L.P. Vorslund-Kjaer D.D.S.	Phila. Dental College.	Copenhagen, Denmark.
Russia.	H. V. Wollison, D.D. S.	N. Y. Coll. Dent.	10 Quai de l'Amaranti, St. Petersburg, Russia.
"	Theo. Weber, D. D. S.	N. Y. Coll. Dent.	Helsingfors, Finland.
"	Geo. Th. Berger, D.D.S.	Phila. Dental Col., '77.	St. Petersburg, Russia.
Germany.	W. D. Miller, D.D.S.	Univ. Pennsylvania.	Victoriastrasse 30, Berlin, Germany.
"	C. F. W. Bodecker, D.D.S.	N. Y. Coll. Dent.	55 Unter den Linden, Berlin, Germany.
"	Friedrich Hesse, D.D.S.	N. Y. Coll. Dent.	Goethe Str. 6, Leipsig, Germany.
Austria and Hungary.	Dr. Szigmondi.	....	....
" "	Dr. Waeisser.	....	....
" "	Dr. Arkovy.	....	....
Italy and Greece.	Albert T. Webb, D.D.S.	Univ. Pennsylvania.	87 Via Nazionale, Rome, Italy.
" "	Tullio Avanzi.	....	....
" "	A. V. Elliott, D.D.S.	Univ. of Michigan, '87.	10 Via Tornabuoni, Florence, Italy.
France.	J. H. Spaulding, D.D.S.	Univ. Minnesota.	39 Boul. Malesherbes, Paris, France.
"	I. B. Davenport, M.D.	Coll. P. & S., New York.	30 Ave. de l'Opera, Paris, France.
"	G. A. Roussell, D.D.S.	N. Y. Coll. Dent.	74 B'd Haussmann, Paris, France.

COUNTRY.	NAME.	COLLEGE.	POST OFFICE ADDRESS.
Spain and Portugal.	R. H. Portuondo, D.D.S.	Univ. Pennsylvania.	Pasco de Recoletos 3, Madrid, Spain.
" "	Florestan Aguilar, D.D.S.	Phila. Dental College.	Serrano 5, Madrid, Spain.
" "	T. J. Thomas, D.D.S.	....	Bilbao, Spain.
Switzerland and Turkey.	L. C. Bryan, D.D.S.	Boston Dental College.	1 Steinenberg, Basel, Switzerland.
" "	Theo. Frick, D.D.S.	Univ. Pennsylvania.	14 Tonhallenstrasse, Zurich, Switzerland.
" "	Paul J. Guye, D.D.S.	Penna. Dental College.	12 Rue de Candolle, Geneva, Switzerland.
Japan, China and India.	Louis Ottofy, D.D.S.	Western Dental College.	87 Main street, Yokohama, Japan.
" " "	J. Ward Hall, D.D.S.	....	Shanghai, China.
" " "	....	....	....
Australia & New Zealand.	Alfred Burne, D.D.S.	Phila. Dental College.	1 Lyons Terrace, Liverpool street, Sydney.
" " "	A. P. Merrill, D.D.S.	Phila. Dental College.	52 Collins st., Melbourne.
" " "	Herbert Cox, D.D.S.	Univ. of Michigan.	216 Queen st., Auckland, New Zealand.
Cuba & W. India Islands.	....	....	....
" " "	Rice R. Buchanan, D.D.S.	....	47 San Francisco st., San Juan, Porto Rico.
" " "	....	....	....
Mexico & Cent. America.	....	....	....
" " "	....	....	....
" " "	....	....	....
Venez., Colom. & Ecua'r.	....	....	....
" " "	....	....	....
" " "	....	....	....
Peru, Bolivia and Chili.	S. R. Salazar, D.D.S.	Chicago Col. Dent. Surg.	Lima, Peru.
" " "	....	....	....
" " "	....	....	....
Brazil and Guiana.	....	....	....
" "	....	....	....
" "	....	....	....
Argentine, Para. & Uru.	....	....	....
" " "	....	....	....
" " "	....	....	....

W. C. BARRETT, *Chairman*,
208 Franklin St., Buffalo, N. Y.

S. H. GUILFORD,
1728 Chestnut St., Philadelphia, Pa.

J. D. PATTERSON,
Ninth and Walnut Sts., Kansas City, Mo.

T. W. BROPHY,
126 State St., Chicago, Ill.

H. W. MORGAN,
211 N. High St., Nashville, Tenn.
Foreign Relations Committee.

SELECTED ARTICLES.

PULP DEVITALIZATION.

If it were not for the dental pulp, the dentist's lot would be a far happier one than it is. Its presence is the cause of nearly all toothache, either directly or indirectly. It makes the excavation of dentine very frequently an extremely painful operation; its calcification sometimes produces acute or subacute facial neuralgia, and even after its death its baneful influence is felt in septic poisoning of the peridental membrane and subsequent alveolar abscess. But we think that, of all the suffering it causes, the worst is its acute inflammation, with or without an actual exposure. In old days the remedy was simple and radical; there was nothing for it but to remove the tooth. But at the present time with our improved methods of devitalization and extirpation, it is often comparatively easy to get rid of the dental pulp and to preserve the tooth. Easy we say, but not therefore painless. The act of exposing a pulp may be an acutely painful operation, while we cannot guarantee that the subsequent application of arsenious acid will be devoid of pain; on the contrary, often when we least expect it the suffering of our patient is very acute. Besides the pain often occasioned by its application, arsenious acid is a dangerous drug which may produce periostitis if its action travels through the apical foramen, or if it leaks through the temporary filling on to the gum. Nitrous oxide gas is useful for exposing a pulp, but, except in simple cases, the time allowed by its anæsthetic effect is usually not long enough to extirpate the pulp. The application by the chloride of ethyl spray often causes acute suffering at the commencement, though this passes away before long. The action of this drug, moreover, is only the surface, and one cannot go very deeply into the pulp under its influence.

A plan which has been lately recommended is as follows: "Usually the coffer-dam is applied, although this is not in all cases essential; as much as possible of the decay is removed and the pulp laid bare. Take a small piece of amadou, and, with a pair of pliers, dip it into alcohol, and then on powdered cocaine or eucaine, and introduce into the cavity directly over the exposed pulp. Take sufficient dental rubber to fill the cavity, place it over the amadou, and with a burnisher or other suitable instrument apply pressure upon the rubber, taking care to avoid giving pain. As the anæsthetic takes effect the tendency to pain subsides, and when there is insensibility to pressure the operation of further opening the pulp cavity and removing the pulp may proceed. The application is supposed to have been continued from three to six minutes or longer. The first application usually is not sufficient to complete the operation. In some cases it only enables one to make a proper opening to the pulp for the action of a second application. Whenever pain is produced in cutting, another application is necessary. The same is true after the second and subsequent applications, for the operation, to be a complete success, is to be really painless. To accomplish this, however, in some cases considerable patience is required; such patience, however, will not fail of its reward."

A case lately came under our care in which the patient complained of pulpitis in the region of the right lower bicuspids. Both the bicuspids contained large amalgam fillings, and as the patient's symptoms seemed to point to the second bicuspid as the seat of pain, it was resolved to devitalize that pulp by the above method. The filling was drilled out, the pulp just exposed, and the cocaine applied for just five minutes. The result was an absolute success, no pain being felt during the extirpation of the pulp. The cavity was then filled from the root upwards and the patient dismissed. She returned in a few days, saying the pain was as bad as ever. The first bicuspid pulp was then exposed and the cocaine applied in the same way, but not with the same results. Little or no anæsthetic effect was produced, and the pulp was extirpated under gas. In our opinion the difference is accounted for by the theory that the second bicuspid pulp was healthy, while that of the first bicuspid, which was evidently the cause of the pain, was inflamed, and consequently was not acted upon by the cocaine. This theory has been borne out by further experiments, and we have come to the conclusion that the more inflamed the pulp is, and the more it requires devitalizing the less it is acted upon by the drug. We hope to continue our investigations further, but up to now we must sorrowfully confess that the hopes engendered in our first operation have not been fulfilled in subsequent ones.—ED. in *British Journal of Dental Science.*

DOES GOLD GROW?

Strange stories are being told of the manner in which Colorado and California mines are renewing their youth, and science has ceased to laugh and begun to investigate. The rafters of old shafts have been discovered coated with the yellow metal, and there are those who find in this a proof that gold is not an element, and that some day soon gold, silver and platinum will be found fundamentally identical, and their artificial manufacture permanently assured.

Henry G. Hawkee, the United States mineral commissioner for the Paris Exposition of 1878, says: "It is possible, although I will not say it is probable, that gold may be at any time determined to be a compound of two or more elements, and that the process of reuniting such elements may be discovered in turn, realizing the dreams of the ancient alchemist. On the other hand, there can be no doubt but that gold is in the process of manufacture, or, to speak more correctly, in nature's laboratory it is all the while being put in place. In certain abandoned mines in Australia, in which operations have been resumed after a considerable term of years, not only have rock deposits been found to have become enriched during the period of inaction, but old beams and timbers were impregnated with gold."

A. S. Cooper, California State Mineralogist, goes even farther: "We know that gold accumulates from solutions and is thereby left in rock-veins. In other words, these solutions rise in fissures in the rocks, and the other elements disappear or are decomposed, leaving the gold behind, sometimes in actual crystals.

"Certainly I admit that gold may prove to be a combination of elements rather than the simple element it has hitherto been supposed to be. For that matter I am ready to admit that gold and all other elements may yet prove to be one and the same—different forms of hydrogen, perhaps, which possesses the lightest atomic weight of all known substances, and may, therefore, be logically supposed to be capable of being converted into the greatest variety of forms and substances through strictly mechanical metamorphoses, along lines in which men of science are now studying and experimenting."

"Louis Falkenau, one of the best known assayers in the country, says that he admits not only the possibility that gold may grow, but also the probability that it is not a simple element, while Henry S. Darden, Secretary of the California State Mining Bureau, adds, "Gold not only grows, but it is being deposited in California to-day by the hot solfatarras at Sulphur Creek, in Colusa County, where any one who pleases may see it. It occurs with cinnabar, free sulphur and bitumen, a combination which probably has not a parallel elsewhere. I have seen cinnabar brought down from there with crystals of gold imbedded in it. The gold is deposited on the outside of silicious rocks, in the form of crystals, and is plainly formed by the evaporation of aqueous deposits. We have specimens in the State Museum."—*Dental Brief.*

METHOD OF CEMENTING CROWN DOWELS INTO ROOTS.

I endeavor to cement the tooth-crown in such a way that it is possible to get it off without demolishing the crown. In the crown I presented, the pin required very little cement to hold it in. The cement I use is gutta-percha applied in this way: I warm the crown, and while it is warm I apply a little chloro-gutta-percha to it, or in other words paint the post with it; the chloroform immediately evaporates, leaving a thin film of gutta-percha. I then apply the crown to the root, and remove it as quickly as possible. I warm the crown again, and repeat the operation a number of times, until I find I have it in position, and a mere film of gutta-percha on to hold it there. The last time I remove the crown, I have some zinc phosphate mixed to a cream-like consistence. I almost invariably use a square bottle on which to mix my zinc phosphate. You can hold it by the nozzle and use the sides as a slab. I fill the bottle with water. In winter I use cold water directly from the faucet, and in summer I use ice water. With that means you can sufficiently retard the setting of any oxyphosphate and get it to work satisfactorily. After removing the crown and heating it for the last time, just as I introduce it, I insert on the inside of the cap or on the end of the root enough oxyphosphate to fill any interstices that will be there, and then I put the crown in position. Should occasion require it, by thoroughly heating the crown, putting a heated piece of metal against the metallic parts, removing it occasionally as it disturbs the patient, and repeating the operation, you can remove whatever hold there is to the crown and cause it to give way. To be able to cement crown- and bridge-work with gutta-percha I think constitutes a new era in that line of work, because one of the greatest objections to this work has been the difficulty of removing it when occasion required. With bridge-work cemented on with gutta-percha, all you need to do is to apply a heated instrument, and in five minutes you loosen it so it comes off. It does away with the question of removable bridge-work, of which so much has been said and written. Removable bridge-work is almost impracticable, in my opinion, except in special instances. It is so laborious and so intricate in construction that there are very few patients who will remunerate the dentist for the time he spends in its construction.—GEO. EVANS.

THE SHRINKAGE OF AMALGAMS.

THOMAS FLETCHER, F. C. S., of Warrington.

The way this ancient bugbear still crops up is curious. The persons who waste their time on this subject have not yet been able to see that the greatest shrinkage of the worst amalgam is a drop in the ocean as compared with the damage done by alteration of form, or so-called spheroiding, which occurs. One persistent experimenter, whose writings are well known, told me that one of the amalgams he tested had twisted so much that he could not measure it, and instead of discarding it as worthless, he actually clamped it down in his mould, and gravely published the shrinkage. Any amount of reasoning would not make him see that, if an amalgam lost its shape after hardening, the publication of its first shrinkage was not a matter of national importance. The most curious experience I have had of this kind was with a non-shrinking amalgam.

I engraved a monogram on an ivory box, with good anchorages, filled it with a non-shrinking amalgam, and polished all level after hardening. In six months this was "humped up" everywhere, although the anchorages held good. The amalgam was distinctly above the level of the ivory, and had apparently expanded upwards, but only at the expense of the sides, which parted from the ivory.

If an amalgam shrinks, it will naturally shrink in all directions; and therefore, if a plug is inserted in a glass cavity, it will leak all over. It is very well known that this is not the case; the leakage occurs only near the top, where the amalgam is not confined; it is always worst at the top edge, and rarely, if ever, extends more than half-way down in the worst cases. If it were shrinkage only, the leakage would be equal all over the sides and bottom of the plug. It is surprising that so well known a fact should not have led experimenters to consider the matter more closely, and to recognize where the weak point really is. The method of proving the change of shape was published by me in the *British Journal of Dental Science* some twenty-five years ago, and has never been questioned by any one who has made any careful experiments. I have not the slightest hesitation in saying that a micrometer, as at present used, is of no more service than a penny whistle, for testing the working value of an amalgam.

If those who waste so much time on the shrinkage question would devote a little of it to studying the retention of form, their work would be of some service. No shrinkage tests will give any idea of the actual value, and those amalgams which do not alter in shape are the only ones which are really permanent in the mouth.—*British Journal of Dental Science.*

BOOK NOTICE.

THE STUDENTS MEDICAL DICTIONARY—including all the words and phrases generally used in medicine, with their proper pronunciation and definitions, based on recent medical literature by George M. Gould, A. M., M. D., author of "An illustrated dictionary of medicine, biology, and allied sciences," "30,000 medical words pronounced and defined," "The meaning and method of life," "Borderland Studies," editor "Philadelphia Medical Journal," etc., etc. With elaborate tables of the bacilli, micrococci, leucomains, ptomains, etc.; of the arteries, ganglia, muscles, and nerves; of weights and measures, analyses of the waters of the mineral springs of the United States, etc., etc.; and a new table of eponymic terms and tests. Eleventh edition, enlarged with many illustrations. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut Street, 1900.

This is indeed a remarkably fine book. Like all of Dr. Gould's dictionaries, it has our thorough endorsement. The present edition—the eleventh—is a remarkable improvement on the other Students medical dictionaries previously edited by Dr. Gould. It has features of that invaluable work of his, "The Illustrated Medical Dictionary," wherein the students may find the most salient points of the human organism well illustrated, doing much to make the definitions clearer; while it is of a size easily handled. We heartily commend it to all students, who will find in it invaluable tables, tests and terms, not found in works of the kind. It is published in cloth binding at $2.50.

LIBRARY
COLLEGE OF DENTISTRY
UNIVERSITY OF CALIFORNIA
SAN FRANCISCO

OBITUARY NOTICE.

DR. HENRY H. BURCHARD.

Died at Redlands, Cal., June 25, 1900, Henry H. Burchard, M. D., D. D. S., in the thirty-eighth year of his age.

We regret to record the premature demise of this brilliant and promising young man. Always approachable, friendly to all his acquaintances, he was a universal favorite with all who knew him. A brilliant and lucid speaker, he never spoke on any question under discussion but his hearers were edified and instructed.

"Whom the gods love, die young."

NEW JERSEY STATE DENTAL SOCIETY.

At the annual meeting of the New Jersey State Dental Society the following officers were elected for the ensuing year:

Dr. F. Edsall Riley, President, Newark; Dr. Wm. L. Fish, Vice-President, Newark; Dr. Henry A. Hull, Treasurer, New Brunswick; Dr. Charles A. Meeker, Secretary, 29 Fulton Street, Newark; Dr. H. S. Sutphen, Assistant Secretary, 24 E. Kinney Street, Newark.

Executive Committee—Dr. H. S. Sutphen, Newark; Dr. Oscar Adelberg, Elizabeth; Dr. F. L. Hindle, New Brunswick; Dr. W. H. Pruden, Paterson.

Membership Committee—Dr. G. M. Holden, Chairman, Hackettstown; Dr. J. L. Crater, Orange; Dr. W. W. Hawke, Flemington; Dr. A. Irwin, Camden; Dr. W. W. Woolsey, Elizabeth.

PRACTICAL PLACE.

INDURATED ABSCESS.

We find, at times, that an alveolar abscess assumes the condition of induration or hardness, instead of the flabby, softened puffiness most generally seen in this disease before it bursts and forms the external fistula.

These have been successfully treated with iodine. A paste made of chalk, combined with a little carbolic acid and glycerine, to which crystals of iodine are added and introduced into the root canals. The rubber-dam should be adjusted before the paste is filled into the root. Two or three treatments of this kind, mixing the paste fresh each time, will generally result in getting rid of the induration.

GENERAL INDEX FOR VOL. XIV, 1900.

A

PAGE.

An Interesting Supreme Court Decision . . . 23
Antipyrine as a Local Anaesthetic 26
American Medical Association 46
Adhesive Cement for Plate and Bridge Work 55
A Case in Bridge Work 58
Amalgam for Children's Teeth 64
A Place for Copper Amalgam 64
A Case of Tetanus Treated with Carbolic Acid 70
A New Alloy 93
Abnormal Space Between the Superior Central Incisors 94
Antiseptic Treatment for Putrid Root Canals 95
A New Soldering Investment 117
A New Dental Society 157
A Substitute for the Diamond Drill 160

B

Black Rubber 49
Binding Wire Instead of Ligatures 50
Brief Suggestions 53
Blue Pencil 60
Bridge Work 61
Burns 64, 160
Book Notices 87, 107, 189
Bridge Abutments 92
Bear This in Mind 159

C

Correspondence 24
Cajiput, Oil of 24
Cloves, Oil of 26
Clasps 26
Campho-phenique as an Obtundent 27
Care in Trimming Amalgam Fillings 27
Carbolic Acid 29
Cologne Water 30
Cement for Broken Casts 31
Clinical Studies of Some Suppurative Diseases of the Maxillæ 79
Commencement Exercises of the Northwestern University Dental School 110
Convex Prismatic Spectacles for Dentists . 118
Cement for China. Metals, etc. 122
Check Flow of Saliva 122

D

Decrowning Teeth 21
Dental Wax 58
Dental Laws and What They Have Accomplished 74
Dentists in the Army 90
Devitalize the Pulp, To 121
Deep Cavities in the Permanent Teeth of Young Children 160
Does Gold Grow? 185

E

Editorial 49
Eucaine 51, 159
Ease in Alveolar Abscess and Periodontitis 92
External or Local Application 126

F

Formula for Fine Gold 29
For Toothache. Pain After Extraction . . 57
For Burns 64
Formalin Cataphorically 94

F

PAGE.

Formaldehyde in Solid Form 96
Formaldehyde in Dentistry 114
Formaldehyde 121
Flux for Soldering Gold Work 123
For Malaria 32

G

Greeting 14
Gold Solder 60
Gutta Percha in Setting Crowns and Bridge Work 122

H

Hydronapthol in Root Canal Treatment . 24
How to Pack Amalgam 25
How to Manage Gold Fillings 28
How Must I Articulate a Set of Teeth? . . 43
How to Duplicate Plaster Models 57
Hypertrophied Gum 92

I

International Dental Congress 47
If Plaster Adhere to Vulcanite After Vulcanizing 94
Ivy Poisoning 96
Iodine in Fish 103
International Dental Congress in France 104
Indurated Abscess 190

K

Kentucky State Dental Association . 15, 46, 88
Keep Solder in Place, To 29

L

Leading Questions and Answers for Dental Students 1, 38, 65, 137, 162

M

Mouldine, A Cheap 24
More in the Occlusion than in the Finish . 27
Making Dental Alloys: Order in Which the Metals Should be Added 31
Moulding Sand 32
Mechanical Root Cleaner 92
Making Babbitt Metal 92
Mouth-Wash for Fetid Breath 96
My Method of Adjusting the Rubber Dam 97
Mercury as an Aid in Second Soldering . 123
Method of Taking an Impression and Bite in Plaster without Cup for Crown and Bridge Work 128
Method of Cementing Crown Dowels in Roots 187
Malaria, For 32

N

Nickel and Its Uses in Dentistry 33
Nervanin 50, 128
New Jersey State Dental Society 106

O

Obituary Notices 15, 157, 190
Oil of Cajiput 24
Oil of Cloves 26
Oxychloride of Copper 28
Orthoform—Relief of Toothache 123
Orthoform After Extraction 125

P

Permanganate of Potassium as an Antidote 61

GENERAL INDEX FOR VOL. XIV.

P

PAGE.

Papin . . . 62
Practical Suggestions . . . 95
Pulp Mummification . . . 121
Prevention of Decay . . . 128
Prevention of Irregularity . . . 159
Pastilles for Fetor of the Breath . . . 160
Potassium Chlorate for Burns . . . 160
Painless Extraction of the Teeth by Local Anaesthetic . . . 161
Pulp Devitalization . . . 184

Q

Quinine Sulphate for Sensitive Dentine . 160

R

Rules for Extracting . . . 31
Recession of the Gums . . . 63
Reception Committee Appointed by the Management of the International Dental Congress at Paris . . . 104
Root Canal Treatment . . . 111
Regulating Plates . . . 124
Railroad Grammar . . . 125
Report of the Meeting of the New Jersey State Dental Society . . . 142
Report of the Foreign Relations Committee of the National Association of Dental Faculties . . . 166
Report of the Penna. Association of Dental Surgeons . . . 6
Removal of the Dental Pulp . . . 25
Receipt for Sticky Wax . . . 29

S

Submarine Cohesive Gold . . . 17
Setting Crowns . . . 26
Separating Model from Impression . . . 27
Sensitive Dentine . . . 32, 123, 126, 159, 160
Strengthening Plaster Teeth . . . 57
Sulphuric Acid in Mixing Amalgam . . . 59
Saucer-Shaped Cavities . . . 63
Securing Certainty in Covering Cervical Margins . . . 93
Sour Stomach . . . 122
Separating Rubber . . . 123

S

PAGE.

Sometimes Teeth Become Devitalized in the Entire Absence of Decay . . . 124
Sump and Fryite . . . 125
Stable Solutions of Cocaine . . . 127
Sodium Peroxide Used Dry . . . 64

T

To Set Cement Rapidly . . . 13, 125
The Thumb and Lunacy . . . 25
The Use of Silver Nitrate . . . 28
To Keep Solder in Place . . . 29
To Retard or Hasten the Setting of Plaster . . . 30
To Extract Living Pulps . . . 30, 56
To Stick Paper to Glass . . . 32
The Best Way to Open a Tube of Pirozone 32
The Blue Pencil . . . 60
The School Dentist . . . 84
The Use of Trichloracetic Acid . . . 85
To Remove Teeth from Rubber Plates without Cracking Them . . . 93
The Oil Stone . . . 93
The Use of Solidified Formaldehyde in the Treatment of Abscessed Teeth . . . 116
To Devitalize the Pulp . . . 121
Tough Plaster Casts . . . 122
To Keep Alcohol Absolute . . . 122
To Check the Flow of Saliva . . . 122
To Painlessly Remove Amalgam Fillings 124
Treatment of Socket After Extraction . . 125
To Remove Gum Tissue from Tooth Cavity . . . 158
Tannoform Cement . . . 159
The Shrinkage of Amalgam . . . 188

U

Uses of Absolute Alcohol . . . 27

W

Why Teeth Decay and How to Preserve Them . . . 8
What is Salt? . . . 59
What Shall I Do? . . . 129
West Jersey State Dental Society . . . 190

Date Due

Laboratory

ue

LIBRARY RULES

HOURS 11-12 A.M.

1. One book only will be issued on presentation of borrower's card.

2. Books may be retained for a period of four days. Renewal for four days more will be made upon request.

3. A fine of 5 cents per day will be charged on books not returned when due.

4. Borrowers will be charged for all injury to books.

LIBRARIAN'S HOURS

MONDAY AND FRIDAY, 9-12 A.M.
WEDNESDAY, 1-4 P.M.